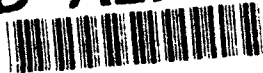


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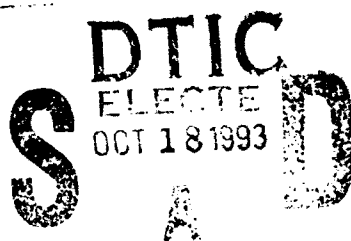


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ENVIRONMENTAL ASSESSMENT



DEACTIVATION OF THE SR-71 PROGRAM AT  
BEALE AIR FORCE BASE, CALIFORNIA

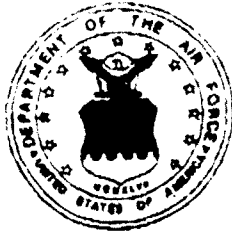
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DEPARTMENT OF THE AIR FORCE  
HEADQUARTERS, STRATEGIC AIR COMMAND  
OFFUTT AIR FORCE BASE, NEBRASKA

OCTOBER 1, 1990

93-24486





**Air Force  
Environmental Planning Division  
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## SUMMARY

Purpose

The United States Air Force (USAF) Strategic Air Command Headquarters (HQ/SAC) has proposed to deactivate the SR-71 program currently operating as part of the 9th Strategic Reconnaissance Wing's (9th SRW) mission at Beale Air Force Base (AFB) near Sacramento, California. This mission change is anticipated to take place coincident with the beginning of fiscal year 1991.

Need For The Proposed Action

The USAF HQ/SAC has determined that it cannot continue the SR-71 program in light of its high operating cost, required manpower needs, and necessary ground-based support functions and facilities. The reconnaissance mission will be accomplished through continued U2 flights and satellite technology. In accordance with NEPA and CEQ regulations, USAF HQ/SAC has formulated the proposed action and alternatives. Section 2.0 of this Environmental Assessment (EA) presents a detailed discussion of the proposed actions and alternatives; and provides a justification for the proposed action.

Existing Development

Existing personnel at Beale AFB are detailed below.

	<u>Total Beale AFB Personnel</u>	<u>Total SR-71 Personnel</u>	<u>SR-71 Personnel as Percent of Total</u>
Officers	562	67	12
Enlisted	3,226	519	16
Civilian	<u>476</u>	<u>38</u>	<u>8</u>
Total	4,264	624	15

Development at Beale AFB is basically confined to three functional areas.

### Summary Of The Current SR-71 Program

The 9th SRW maintains and operates a small fleet of Lockheed SR-71 aircraft from Beale AFB for the principal purpose of acquiring worldwide high-altitude flight reconnaissance information and other data to support United States strategic and/or national defense objectives.

The Flightline Area of Beale AFB serves as the principal location for the SR-71 operation and maintenance facilities. These facilities include hangers, personnel support facilities, a unique flight simulator facility, maintenance and repair facilities, and planning and operational facilities. In addition to these ground-based support facilities, the SR-71 program also includes the use of T-38 aircraft (tandem-seated, fighter-type aircraft) used by SR-71 flight crews for training exercises, and Boeing KC-135Q tanker aircraft that provide in-flight air refueling support.

### Scope

Major issues to be addressed in this EA were identified through discussions with USAF personnel who are familiar with the mission and operation requirements of the SR-71 program, and review of a previous EA prepared by the USAF dated September 1988 for a proposed, but unrelated, mission change for SR-71 and T-38 aircraft at Beale AFB. Based on these discussions and review, it was determined that the proposed action and alternatives would have the potential to affect the following environmental disciplines:

- o Air resources;
- o Water resources;
- o Biological resources;
- o Noise;
- o Socioeconomics;
- o Air Safety; and
- o Waste disposal.

Therefore, these environmental disciplines have been investigated and addressed in this EA.

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It was further established through the discussions and review mentioned above that the following environmental disciplines would not be affected by the proposed action and alternatives:

- o Earth resources;
- o Zoning and political boundaries;
- o Archaeological, cultural, and historic resources;
- o Visual and aesthetic values;
- o Ground transportation; and
- o Utilities.

### Impact

All of the impacts identified are small but beneficial with the exception of the loss of jobs for approximately 67 officers, 519 enlisted and 38 civilian personnel. This adverse impact is deemed insignificant with respect to the local/regional economic base. Deactivation of the SR-71 program will not affect the investigations/remedial action that are ongoing with respect to Beale AFB's Installation Restoration Program (IRP) program. No mitigation measures are required for the proposed action.

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## **1.0 PURPOSE OF AND NEED FOR THE PROPOSED ACTION**

### **1.1 PURPOSE**

The United States Air Force (USAF) Strategic Air Command Headquarters (HQ/SAC) has proposed to deactivate the SR-71 program currently operating as part of the 9th Strategic Reconnaissance Wing's (9th SRW) mission at Beale Air Force Base (AFB) near Sacramento, California. This mission change is anticipated to take place coincident with the beginning of fiscal year 1991. This Environmental Assessment (EA) is prepared in accordance with the National Environmental Policy Act of 1969 (NEPA), as stipulated in regulations promulgated by the Council on Environmental Quality (CEQ) (40 CFR 1500-1508, November 1978), and Air Force Regulation (AFR) 19-2.

### **1.2 NEED FOR THE PROPOSED ACTION**

The USAF HQ/SAC has determined that it cannot continue the SR-71 program in light of its high operating cost, required manpower needs, and necessary ground-based support functions and facilities. The reconnaissance mission will be accomplished through continued U2 flights and satellite technology. In accordance with NEPA and CEQ regulations, USAF HQ/SAC has formulated the proposed action and alternatives. Section 2.0 of this EA presents a detailed discussion of the proposed actions and alternatives; and provides a justification for the proposed action.

### **1.3 LOCATION, HISTORY, AND MISSION OF BEALE AFB**

#### **1.3.1 Location**

Beale AFB currently consists of 22,944 acres of government-owned land in Yuba County, approximately 40 miles north of the city of Sacramento and 13 miles east of Marysville, in north-central California (Figure 1-1). The foothills of the Sierra Nevada mountains border the eastern edge of the base. The Yuba River to the north, the Bear River to the south, and Camp Far West Reservoir to the southeast are the nearest large water sources. Other neighboring cities are Yuba City, 16 miles west; Oroville, 40 miles north; and Grass Valley, 25 miles east.



### **1.3.2 History**

Beale AFB, named for General Edward Fitzgerald Beale, opened in October of 1942 with more than 86,000 acres of land. During World War II, the camp was used as an infantry training center, a personnel replacement depot, and prisoner-of-war camp. During the war, the camp supported a military population of more than 60,000 personnel.

Camp Beale was declared surplus in 1947 and in early 1948, transfer was arranged to the United States Air Force. The base was used for bombardier-navigator training. In 1951, Headquarters USAF announced the reactivation of the Beale Bombing and Gunnery Range as a training site and officially changed the name to Beale Air Force Base.

During Beale's early years in the Air Force, the base underwent a number of jurisdictional changes, at times being a part of Air Training Command, Continental Air Command, Aviation Engineer Force, and finally the Strategic Air Command. Early in 1959, it was announced that the 14th Air Division would be assigned to Beale AFB. In July 1959, Beale received its first KC-135 jet strato tanker, with B-52 bombers arriving shortly afterwards. In September of 1959, it was announced that Beale was to be the support base for three Titan missile sites. By 1965, the Titan I missile program had been discontinued, and the squadron was inactivated. Coupled with the inactivation of the missile unit, however, was the beginning of a new era in the history of the base with the activation of the 4200th Strategic Reconnaissance Wing (SRW), later redesignated as the 9th SRW.

### **1.3.3 Mission**

The mission of the 9th SRW is to provide global aerial reconnaissance and air refueling support in accordance with provisions of the Emergency War Order in wartime. In peacetime, reconnaissance flights and reconnaissance air refueling support are conducted in response to the Peacetime Aerial Reconnaissance Program and contingency tasking from the National Command Authorities and the Joint Chiefs of Staff. At the same time, the wing supports the requirements of unified and specified commands. After raw intelligence data are collected by U-2, TR-1 and

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SR-71 aircraft, the 9th SRW processes, reports, and disseminates intelligence products to specified civilian and military users.

To accomplish this global commitment, the 9th SRW operates from Beale AFB, with several worldwide detachments employing Lockheed SR-71 and U-2 aircraft and the Boeing KC-135Q tanker aircraft. The KC-135Q provides exclusive air refueling for the SR-71, supports U-2 and TR-1 deployments and other strategic airlift requirements, and provides conventional air refueling support for other Air Force aircraft. Northrop T-38A aircraft provide an integral part of the training of SR-71, U-2, and TR-1 pilots and KC-135Q copilots through specially tailored flying programs that meet the requirements of each pilot's specialty.

The major tenant organizations at Beale AFB are the 14th Air Division and the 7th Missile Warning Squadron. The 14th Air Division's mission is to ensure that units assigned to the division are capable of conducting worldwide strategic reconnaissance, and maintaining an airborne command post in continuous operation.

The primary and secondary mission of the 7th Missile Warning Squadron's PAVE PAWS system is to provide warning and attack assessment of a sea-launched and/or intercontinental ballistic missile attack aimed at the continental United States and Southern Canada. The tertiary mission is to provide surveillance, tracking, reporting, and space object identification for SPACE TRACK operations.

#### 1.4 EXISTING DEVELOPMENT

Existing personnel at Beale AFB are detailed below.

	<u>Total Beale AFB Personnel</u>	<u>Total SR-71 Personnel</u>	<u>SR-71 Personnel as Percent of Total</u>
Officers	562	67	12
Enlisted	3,226	519	16
Civilian	<u>476</u>	<u>38</u>	<u>8</u>
Total	4,264	624	15

Development at Beale AFB is basically confined to three functional areas. These areas are the Flightline Area, the Cantonment Area, and the Family Housing Area. Figure 1-2 presents these three areas in relationship to one another.

The Flightline Area, besides containing the mission-essential runway and associated taxiway and aprons, includes aircraft operation and maintenance facilities, mission support activities, supply activities, and ground vehicle maintenance and fueling activities. Additionally, Explosive Ordnance Demolition (EOD) and fire protection and training functions are carried out here, as are some administrative operations. The Flightline Area has a small compliment of community commercial and service facilities, as well as a small recreational facility. The SR-71 program primarily utilizes facilities in the Flightline Area. However, information on the exact location of SR-71 facilities throughout Beale AFB is not available.

The Cantonment Area supports many of the administrative functions and organizations operating in the Flightline Area. This area is also the central business district for the base, dominated by administrative, community commercial, unaccompanied housing, and industrial uses. Social, maintenance, medical, and spiritual facilities are located here as are base engineering and environmental operations.

The Family Housing Area provides base housing for officers and enlisted personnel. A fire station and an administrative office are also present here. A number of other community service and commercial activities are located here as well as recreational facilities. Figures 1-3 and 1-4 present locations of various facilities in each of these three areas.

### **1.5 SUMMARY OF THE CURRENT SR-71 PROGRAM**

The 9th SRW maintains and operates a small fleet of Lockheed SR-71 aircraft from Beale AFB for the principal purpose of acquiring worldwide high-altitude flight reconnaissance information and other data to support United States strategic and/or national defense objectives. The SR-71 program at Beale AFB has established and maintained Beale AFB as its main hub of operations since the SR-71 aircraft and support facilities became operational in the late 1960's and early 1970's. The SR-71

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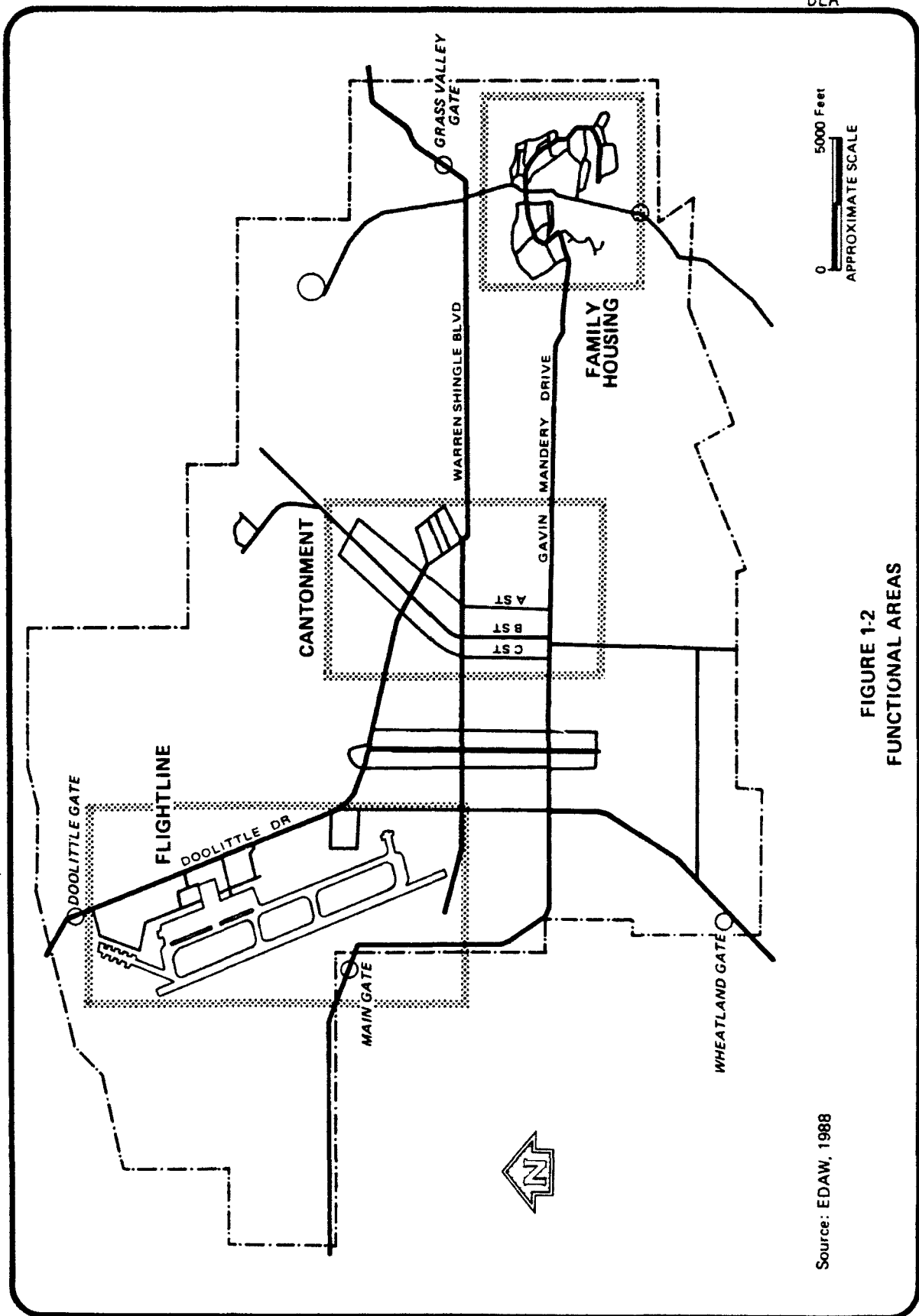


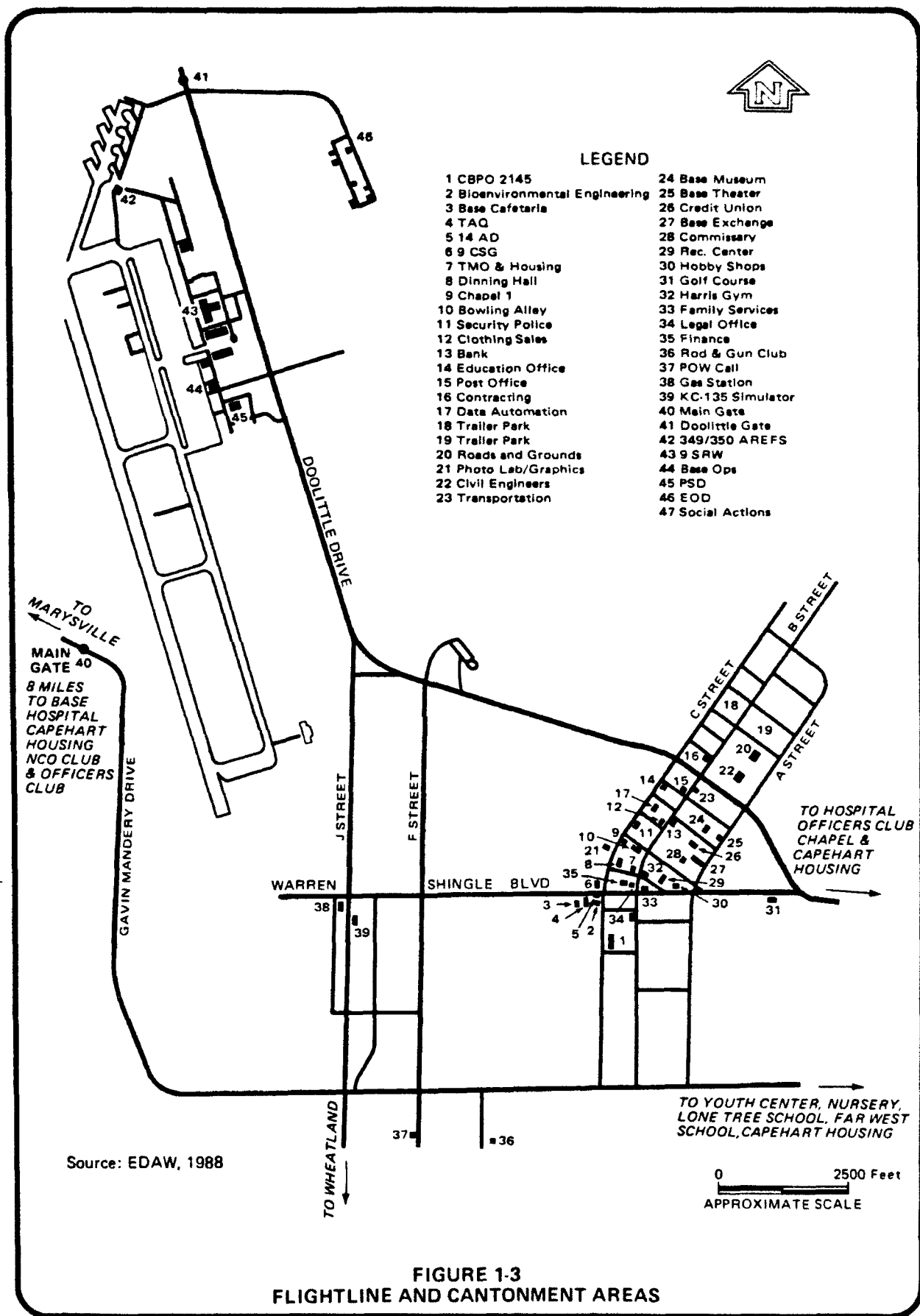
FIGURE 1-2  
FUNCTIONAL AREAS

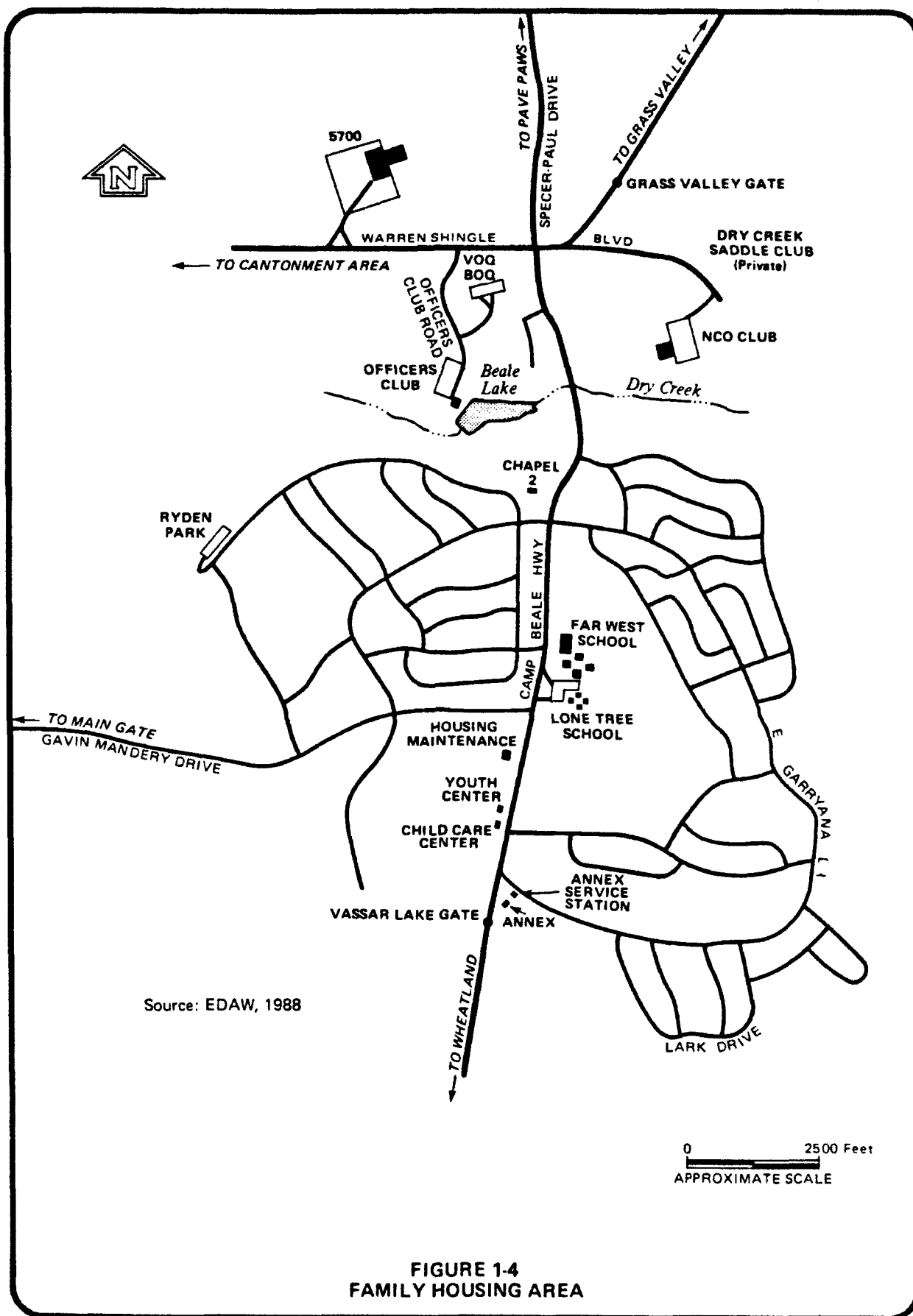
Source: EDAW, 1988

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program is currently operated by a staff of approximately 67 officers, 519 enlisted personnel, and 38 civilians for a total of 624 personnel at Beale AFB. Section 1.4 provides details of total personnel at Beale AFB.

The Flightline Area of Beale AFB serves as the principal location for the SR-71 operation and maintenance facilities. These facilities include hangers, personnel support facilities, a unique flight simulator facility, maintenance and repair facilities, and planning and operational facilities. In addition to these ground-based support facilities, the SR-71 program also includes the use of T-38 aircraft (tandem-seated, fighter-type aircraft) used by SR-71 flight crews for training exercises, and Boeing KC-135Q tanker aircraft that provide in-flight air refueling support.

Principal jet aircraft operating from Beale AFB and the average daily takeoff operations by type of aircraft are shown below (USAF, 1984).

<u>Aircraft Type</u>	<u>No. of Takeoffs</u>	<u>Percentage</u>
T-38	68	39
U-2/TR-1	62	36
KC-135	27	16
Transients	10	6
SR-71	<u>6</u>	<u>3</u>
	173	100

As shown by the above numbers, 3 percent of daily flight operations are SR-71 aircraft. It should be noted that the number of T-38 and KC-135 takeoffs shown above do not necessarily represent direct support of the SR-71 program only. Data are not available that break down flight information for aircraft takeoffs which directly support SR-71 flight operations. T-38 trainers and KC-135 tanker operations also support other USAF functions at Beale AFB in addition to the SR-71.

The SR-71 mission is maintained at a high level of preparedness. In order to accommodate this, numerous flight training patterns are used by SR-71 aircraft

throughout the western United States. These flight patterns have been developed to provide adequate training areas for SR-71 crews and avoid populated or otherwise sensitive geographic areas. The unique flight characteristics of the aircraft (maximum altitudes above 80,000 feet and maximum airspeeds in excess of Mach 3) have been known to cause loud sonic booms. Ninety-five percent of the 217 noise complaints received by Beale AFB personnel in 1988 have been attributed to these sonic booms (Personal Communication, Captain Ronquillo, 1989).

As a result of air speeds in excess of Mach 3, the aircraft creates quite high skin-friction temperatures during flight. The aircraft actually expands several inches in flight as a result of these high-skin temperatures. This design consideration required the development of a unique jet fuel (JP-7) for use in the SR-71. JP-7 is typical jet fuel with special additives that elevate its flash point to avoid inopportune and unanticipated combustion during flight.

The ability for the aircraft to thermally expand due to increased aircraft temperature in flight has caused fuel to leak from the aircraft when it is at rest at ground-level ambient temperatures. Over the years, this fuel leakage combined with surface water runoff has contributed to the contamination of a small drainage that leads from the flightline area west of the existing runway, and an area in the vicinity of the SR-71 hangers adjacent to the runway. These locations have been identified as sites 1 and 5 respectively under the Base Installation Restoration Program (Aerovironment, 1987).

## 1.6 SCOPE

Major issues to be addressed in this EA were identified through discussions with USAF personnel who are familiar with the mission and operation requirements of the SR-71 program, and review of a previous EA prepared by the USAF dated September 1988 for a proposed, but unrelated, mission change for SR-71 and T-38 aircraft at Beale AFB. Based on these discussions and review, it was determined that the proposed action and alternatives would have the potential to affect the following environmental disciplines:

- o Air resources;
- o Water resources;
- o Biological resources;
- o Noise;
- o Socioeconomics;
- o Air Safety; and
- o Waste disposal.

Therefore, these environmental disciplines have been investigated and addressed in this EA.

It was further established through discussions and review that the following environmental disciplines would not be significantly affected by the proposed action and alternatives:

- o Earth resources;
- o Zoning and political boundaries;
- o Archaeological, cultural, and historic resources;
- o Visual and aesthetic values;
- o Ground transportation; and
- o Utilities.

Therefore, in keeping with the spirit and intent of NEPA, the CEQ regulations and AFR 19-2 to focus only on issues affected by a proposed action, these environmental disciplines have not been addressed in this EA.

A separate Environmental Impact Statement (EIS) has been prepared to evaluate potential impacts associated with an unrelated proposed action at Beale AFB to relocate the 323rd Flying Training Wing -- the Specialized Undergraduate Navigation Training (SUNT) -- currently operating out of Mather AFB to Beale AFB. The relocation of the SUNT to Beale AFB was recommended by the Commission on Base Realignment and Closure (Commission) and approved by the Secretary of Defense and the U.S. Congress to improve multiservice training. Therefore, as stated in the Notice of Intent (NOI) for the preparation of the EIS published in the Federal Register and dated 8 February, 1989, an analysis of cumulative impacts resulting from

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the relocation of the SUNT to Beale AFB in conjunction with the deactivation of the SR-71 program has been addressed as part of the SUNT EIS and not included in this EA.

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## **2.0 ALTERNATIVES CONSIDERED INCLUDING THE PROPOSED ACTION**

### **2.1 PROPOSED ACTION**

The SR-71 aircraft will be flown to USAF storage facilities in the Southwest upon completion of mission assignments. These aircraft will be stored in a manner that would allow for their possible reuse at some future date. Other aircraft such as the T-38 and KC-135Q used to support the SR-71 will be reassigned for other training or refueling activities at Beale AFB or other USAF installations. Officers and enlisted military personnel will be reassigned to other USAF duties at Beale or other USAF installations. Civilian personnel associated with the SR-71 will either be reassigned or dismissed.

It is anticipated that the JP-7 fuel facilities (storage tanks, pipelines, pumps, etc.) will be converted to accommodate the use of typical jet fuel for other Beale AFB operations. Other base facilities associated with the SR-71 program, such as hanger space, maintenance, storage, and operation buildings, will remain and become available for other base uses.

### **2.2 NO ACTION ALTERNATIVE**

The impacts identified by implementing the proposed action (Section 4.0 of this document) would not occur as a result of implementation of this alternative. These alternatives would result in continued expenditure of funds necessary to support the SR-71 at its current operating level. In light of Department of Defense (DoD) budget constraints and an overlapping capability to provide and accomplish reconnaissance mission objectives through the use of continued U2 flights and satellite technology, the USAF HQ/SAC determined this alternative was inappropriate for further consideration.

### **2.3 ALTERNATIVE TO REDUCE THE CURRENT SR-71 PROGRAM**

The impacts identified by implementing the proposed action (Section 4.0 of this document) would be similar to these resulting from implementing this alternative. This alternative would involve a reduction in aircraft flight activities, manpower, and necessary support facilities, but not total elimination of them. However, due to the

required high level of preparedness maintained by SR-71 flight crews, training and maintenance operations, and the required ability to respond to situations in an emergency or on short notice, this option was deemed not feasible if the current mission objectives for the SR-71 program are to be realized. In addition, this alternative provides a redundant capability in light of U2 and satellite reconnaissance capabilities. Therefore, this alternative was deemed not feasible.



### 3.0 AFFECTED ENVIRONMENT

#### 3.1 INTRODUCTION

This section presents discussions of existing conditions for specific disciplines that may have the potential to be affected by implementation of the proposed action. These disciplines include air resources, water resources, biological resources, noise, socioeconomics, air safety, and solid and liquid wastes.

As discussed in Section 1.6, the scoping process determined that the following environmental disciplines would not be impacted by the SR-71 drawdown: earth resources; zoning and political boundaries; archaeological, cultural and historic resources; visual and aesthetic values; ground transportation; and utilities. Therefore, these disciplines are not addressed in the following sections.

#### 3.2 AIR RESOURCES

Beale AFB is located in southern Yuba County and occupies portions of the Sacramento Valley and Mountain Counties Air Basins for which the California Air Resources Board (CARB) reports ambient air quality data. The closest air monitoring stations reporting to the CARB are Auburn, Yuba City, Pleasant Grove, and North Highlands. These stations monitor ozone ( $O_3$ ), sulfur dioxide ( $SO_2$ ), nitrogen dioxide ( $NO_2$ ), carbon monoxide (CO), and 10-micron particulate matter ( $PM_{10}$ ). The Auburn monitor, located approximately 16 miles southeast of Beale AFB, collects  $O_3$  data. The Yuba City monitoring station is located 13 miles west-northeast of the base and monitors  $O_3$  and  $PM_{10}$ . The Pleasant Grove station is situated approximately 20 miles south of Beale AFB and collects  $O_3$ ; and the North Highlands monitor is approximately 5 miles south of the Pleasant Grove station and samples  $SO_2$ ,  $O_3$ , CO, and  $NO_2$ . Air quality background concentrations for 1985 through 1987 collected at these stations are presented in Table 3-1.

Maximum background air quality data from the above-mentioned table are compared to National Ambient Air Quality Standards (NAAQS) and California Ambient Air Quality Standards (CAAQS) in Table 3-2. This table shows that State

TABLE 3-1

**Summary of Relevant Air Quality Data  
Surrounding Beale Air Force Base  
1985-1987**

Station	Year	O <sub>3</sub> (ppm)			SO <sub>2</sub> (ppm)			CO (ppm)			NO <sub>2</sub> (ppm)			PM <sub>10</sub> (ug/m <sup>3</sup> )		
		1 Hour	Annual	1 Hour	3 Hour <sup>1</sup>	24 Hour	Annual	1 Hour	8 Hour	1 Hour	1 Hour	Annual	24 Hour	Annual	24 Hour	Annual
Auburn	1985	.14	.037											-	-	-
	1986	.17	.039											-	-	-
	1987	.18	.041											-	-	-
Yuba City	1985	.11	.030											78	36.2	
	1986	.14	.030											98	32.7	
	1987	.12	.035											86	34.9	
Pleasant Grove	1985	.12	.030													
	1986	.14	.028													
	1987	.14	.030													
North Highlands Blackfoot	1985	.18	.024	.01	.009	.008	0	10	6.3	.09	.014		-	-	-	-
	1986	.16	.028	.01	.009	.007	0	10	6.3	.09	.014		-	-	-	-
	1987	.14	.027	-	-	-	-	9	7.3	.10 <sup>2</sup>	.022 <sup>2</sup>		-	-	-	-

<sup>1</sup>Estimated as 90 percent of 1 hour measured concentration (EPA, 1977).

<sup>2</sup>North Highlands station ceased monitoring NO<sub>2</sub> in 1987. These measurements were taken from the Citrus Heights, Sunrise Boulevard Monitoring Station (approximately 25 miles south of Beale Air Force Base).

ppm = parts per million.

ug/m<sup>3</sup> = micrograms per cubic meters.

Source: CARB, 1988.

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TABLE 3-2

Maximum Background Air Quality Concentrations  
Surrounding Beale Air Force Base  
1985-1987

<u>Pollutant</u>	<u>Averaging Period</u>	<u>Maximum Background Concentration (ug/m<sup>3</sup>)</u>	<u>CAAQS (ug/m<sup>3</sup>)</u>	<u>NAAQS (ug/m<sup>3</sup>)</u>
O <sub>3</sub>	1 hour	353	180	240
	Annual	80	-	-
NO <sub>2</sub>	1 hour	188	470	-
	Annual	41	-	100
CO	1 hour	11	23,000	40,000
	8 hour	8	10,000	10,000
SO <sub>2</sub>	1 hour	26	655	-
	3 hour	24	-	1,300
	24 hour	21	131	365
	Annual	0	-	80
PM <sub>10</sub>	24 hour	98	50	150
	Annual	36.2	30	50

Source: CARB, 1988.

ug/m<sup>3</sup> = micrograms per cubic meters

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and Federal 1-hour  $O_3$  standards and State 24-hour  $PM_{10}$  standards were exceeded at least once within the 1985-87 data collection period.

The United States Environmental Protection Agency (EPA) has designated Yuba County an attainment area for all pollutants except  $O_3$ . An attainment area is a region or air basin in which monitored air quality levels are in compliance with the NAAQS. The background data listed in Tables 3-1 and 3-2 show that the 24-hour  $PM_{10}$  CAAQS standard of  $50 \text{ ug}/\text{m}^3$  was violated at the Yuba City station in Sutter County at least once during the 1985-87 sampling period.

CARB also reports the average daily air emissions for air basins and counties based on information provided to them by each Air Pollution Control District. This information for Yuba County for 1983 (the most current data available) is presented in Table 3-3. Sources of emissions are presented by category. In this inventory, aircraft operating from Beale AFB are categorized under Other Mobile Sources as Aircraft-Government. This category of sources contributed less than 6 percent of the total organic gases, 7 percent of the reactive organic gases, slightly more than 2 percent of the carbon monoxide, and less than 5 percent of the oxides of nitrogen emitted county-wide.

A complete air emissions inventory reflecting current base operations (both stationary sources and aircraft) is not available. However, the Yuba County Air Pollution Control District does permit some major stationary source emissions at Beale AFB. This does not, however, reflect the total composition of base operating emissions because permitted sources contribute only part of the total operating emissions.

### 3.3 WATER RESOURCES

#### 3.3.1 Regional Setting

Beale AFB is drained by three principal drainage systems. They flow in a general southwesterly direction and are identified from east to west as Dry Creek, Hutchinson Creek, and Reeds Creek. Hutchinson Creek and Reeds Creek are classified as intermittent, while Dry Creek is a perennial stream. In the spring, vernal pools (perched or standing water) can be observed on and around Beale AFB in low-

TABLE 3-3  
1983 Base Year Inventory  
Average Daily Air Emissions  
Yuba County

Source Category	Emissions (tons/day)						
	Total Organic Gases	Reactive Organic Gases	Carbon Monoxide	Oxides of Nitrogen	Oxides of Sulfur	Particulate Matter	Particulate Matter < 10 microns
<b>STATIONARY SOURCES</b>							
Fuel Combustion	-	-	-	-	-	-	-
Agricultural	-	-	-	-	-	-	-
Petroleum Refining	1.2	0.9	1.3	0.5	-	0.1	0.1
Other Manufacturing/Industrial	-	-	-	0.1	-	-	-
Other Services and Commerce	0.2	0.1	1.1	0.2	-	0.2	0.1
Residential	-	-	-	-	0.1	-	-
Other	1.4	1.0	2.4	0.8	0.1	0.3	0.2
<b>TOTAL FUEL COMBUSTION</b>							
Waste Burning	1.1	0.4	8.9	-	-	1.0	1.0
Agricultural-Debris	-	-	0.1	-	-	-	-
Range Management	-	-	0.4	-	-	-	-
Forest Management	-	-	-	-	-	-	-
Incineration	-	-	-	-	-	-	-
Other	0.1	-	0.6	-	-	0.1	0.1
<b>TOTAL WASTE BURNING</b>	1.2	0.4	10	-	-	1.1	1.1
<b>Solvent Use</b>							
Dry Cleaning	0.1	0.1	-	-	-	-	-
Degreasing	0.1	0.1	-	-	-	-	-
Architectural Coating	0.3	0.3	-	-	-	-	-
Other Surface Coating	0.2	0.2	-	-	-	-	-
Asphalt Paving	0.3	0.3	-	-	-	-	-
Consumer Products	0.4	0.4	-	-	-	-	-
Industrial Solvent Use	0.1	0.1	-	-	-	-	-
<b>TOTAL SOLVENT USE</b>	1.5	1.5	-	-	-	-	-

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TABLE 3-3 (cont'd)

Source Category	Emissions (tons/day)					
	Total Organic Gases	Reactive Organic Gases	Carbon Monoxide	Oxides of Nitrogen	Oxides of Sulfur	Particulate Matter < 10 microns
Petroleum Process, Storage & Transfer	-	-	-	-	-	-
Petroleum Refining	0.4	0.4	-	-	-	-
Petroleum Marketing	0.1	0.1	-	-	-	-
Other	0.5	0.5	-	-	-	-
TOTAL PETROLEUM PROCESS, STORAGE & TRANSFER						
Industrial Processes	-	-	-	-	-	0.1
Food and Agriculture	-	-	-	-	-	0.1
Mineral Processes	-	-	-	-	-	-
Wood and Paper	-	-	-	-	-	0.2
TOTAL INDUSTRIAL PROCESSES						
Misc Processes	1.1	1.1	-	-	-	-
Pesticide Application	-	-	-	-	-	2.8
Farming Operations	-	-	-	-	-	0.8
Construction and Demolition	-	-	-	-	-	3.2
Entrained Road Dust - Paved	-	-	-	-	-	1.4
Entrained Road Dust - Unpaved	0.1	0.1	0.8	-	-	0.1
Unplanned Fires	1.2	1.2	0.8	-	-	8.3
TOTAL MISC PROCESSES	5.8	4.6	13	0.8	0.1	9.8
TOTAL STATIONARY SOURCES						

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TABLE 3-3 (cont'd)

Source Category	Emissions (tons/day)						
	Total Organic Gases	Reactive Organic Gases	Carbon Monoxide	Oxides of Nitrogen	Oxides of Sulfur	Particulate Matter	Particulate Matter < 10 microns
<b>MOBILE SOURCES</b>							
On Road Vehicles							
Light Duty Passenger	2.4	2.2	15	1.5	0.1	0.2	0.1
Light and Medium Duty Trucks	1.3	1.2	8.2	0.9	-	0.1	-
Heavy Duty Gas Trucks	0.3	0.3	3.8	0.3	-	-	-
Heavy Duty Diesel Trucks	0.1	0.1	0.4	1.0	0.1	0.1	0.1
Motorcycles	0.1	0.1	0.1	-	-	-	-
<b>TOTAL ON ROAD VEHICLES</b>	<b>4.2</b>	<b>3.9</b>	<b>28</b>	<b>3.7</b>	<b>0.2</b>	<b>0.4</b>	<b>0.2</b>
<b>Other Mobile</b>							
Off Road Vehicles	0.4	0.4	1.5	-	-	-	-
Trains	0.3	0.3	0.3	1.0	0.1	0.1	0.1
Aircraft - Government	0.7	0.7	1.1	0.3	-	-	-
Aircraft - Other	-	-	1.1	-	-	-	-
Mobile Equipment	0.3	0.3	3.2	0.9	0.1	0.1	0.1
Utility Equipment	0.2	0.2	0.9	-	-	-	-
<b>TOTAL OTHER MOBILE</b>	<b>1.9</b>	<b>1.9</b>	<b>8.1</b>	<b>2.2</b>	<b>0.2</b>	<b>0.2</b>	<b>0.2</b>
<b>TOTAL MOBILE SOURCES</b>	<b>6.1</b>	<b>5.8</b>	<b>36</b>	<b>5.9</b>	<b>0.4</b>	<b>0.6</b>	<b>0.4</b>
<b>TOTAL YUBA COUNTY</b>	<b>12</b>	<b>10</b>	<b>49</b>	<b>6.7</b>	<b>0.5</b>	<b>20</b>	<b>10</b>

NOTE: A "-" indicates that emission estimates rounded off to less than 0.1 ton per day.

SOURCE: CARB, 1986.

lying areas. This condition is caused by the presence of near-surface clays and hardpans that are relatively impervious to the vertical movement of water (Aerovironment, 1987).

Groundwater movement in the region has historically been in a direction from the Sierra Nevada foothills eastward to the Feather and Sacramento Rivers. Until the early part of this century, the river system served as a groundwater discharge system. However, extensive farming and irrigation in the Sacramento Valley area rapidly lowered the water table and altered the direction of flow, thus changing the river from a discharge to a recharge system (Aerovironment, 1987).

### **3.3.2 Groundwater Conditions**

Groundwater generally flows in a westerly/southwesterly direction across the base. The most obvious groundwater characteristic in the area is intense drawdown southwest of the base boundary caused by irrigation pumping. Between 1945 and 1974, the water table fell about 60 feet, then stabilized in the mid-1970s. However, between 1977 and 1980, the water table declined sharply once more, in response to drought and increased irrigation for rice production (Aerovironment, 1987). Since 1980, the water level has risen markedly as a result of increased precipitation and lower rice production. Nevertheless, the overall drawdown has been sufficient to alter the direction of local flow in the area of the base well-field from west to nearly south.

It is assumed that groundwater tapped for base use is basically unconfined except where local clay/silt lenses cap the aquifer to produce semiconfined conditions. Fresh water occurs at a depth of between 300 and 500 feet below the surface under most of the base. There are no known historical problems of human introduced contamination of local drinking water supplied from groundwater (Aerovironment 1987).

Current groundwater usage at Beale AFB varies from 2.5 million gallons per day (mgd) in the winter to 6.0 mgd in the summer; the large variation in usage due to high irrigation demand in the dry months. These usage figures are assuming an average daily base population of approximately 10,000 people, including military personnel, dependents, civilian workers, base contract personnel, retired personnel



taking advantage of base facilities, and other visitors. (Personal Communication, Mr. Tony Guerrero, Manager Waste Treatment and Water Supply, Beale AFB, 1989)

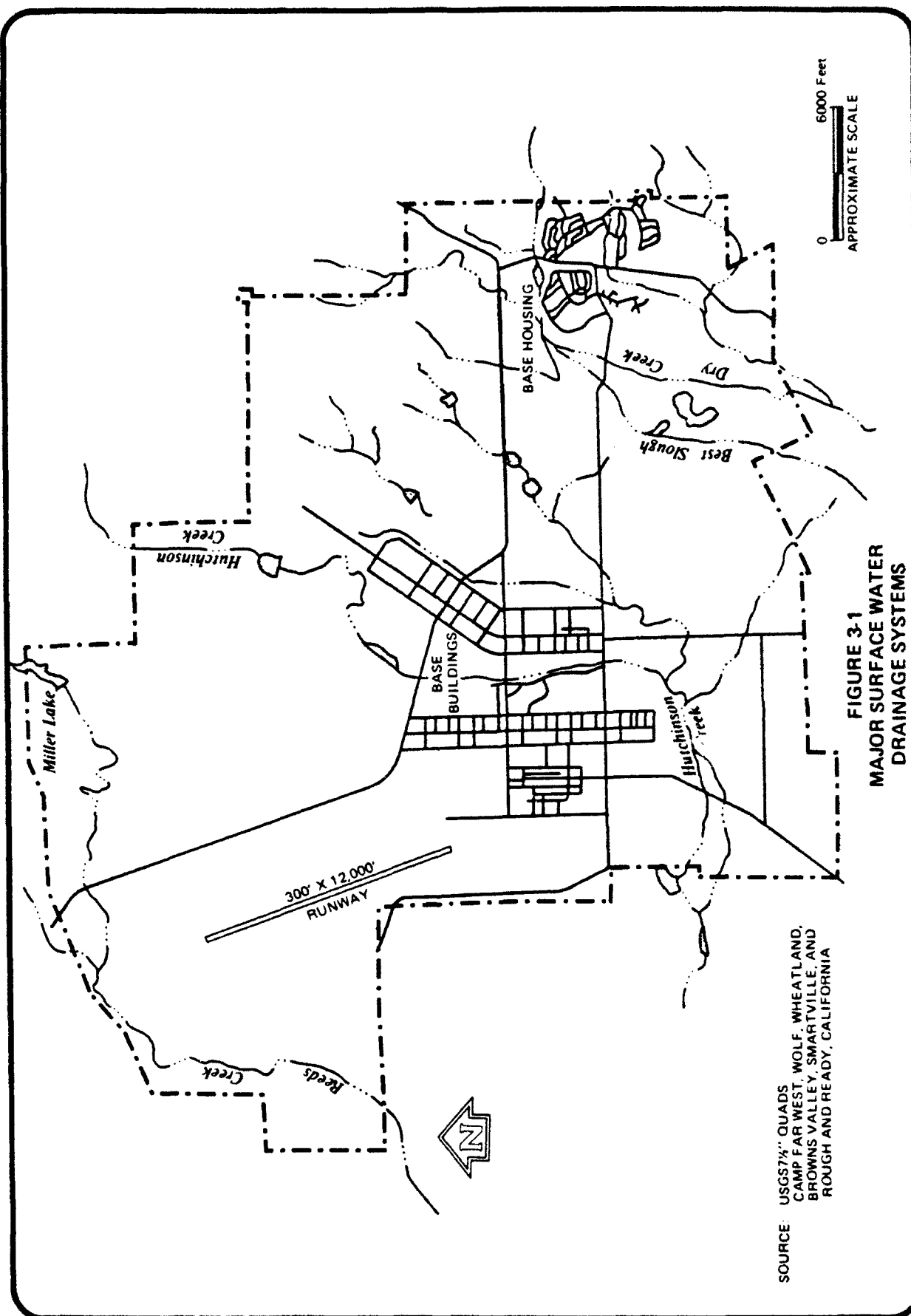
The SR-71 program contributes to photographic wastes that are created by the photographic laboratory. All wastewater from this lab is treated by a separate waste water treatment facility, adjacent to the sewage treatment plant. Until 1986, the treated wastewater was injected into three wells and the IRP investigation at Beale AFB found that deep soils and groundwater may be contaminated by phenolic compounds as a result of this photographic waste disposal activities. Photographic wastewater is no longer injected into disposal wells. (Aerovironment 1987).

Fire Protection Training Areas exist at Beale AFB where jet fuel, including fuel that is contaminated by dirt or oil and therefore unusable, hydraulic fluid, and waste solvents are used for live fire training. The SR-71 program may contribute combustible materials to this activity. The IRP investigation found no significant concentrations of contaminant in the water table aquifer at the Fire Protection Training Areas. (Aerovironment 1987).

### **3.3.3 Surface Water**

Runoff from the base is collected and converged offsite by three principal drainage systems. These drainage systems are Dry Creek, Hutchinson Creek, and Reeds Creek. With the exception of Dry Creek, these streams are primarily intermittent (Figure 3-1). Because of impervious soil conditions, lack of topographic relief and infrequent but sometimes heavy precipitation, the streams in the western portion of the base exhibit wide floodplain areas.

Dry Creek originates to the east of the base and flows to the southwest as Best Slough and Dry Creek, eventually discharging into the Bear River. Hutchinson Creek, which is the largest surface water system on the base, flows mainly south on base and eventually joins Reeds Creek. Reeds Creek flows mainly west through the base and generally parallels the northern base boundary. Reeds Creek and Hutchinson Creek join before they drain into Plumas Lake southwest of the base.



Both the Flightline and the Cantonment Areas drainage is collected by Hutchinson Creek and its tributaries. Surface runoff from the Family Housing Area is collected by unnamed tributaries to Dry Creek.

Surface water runoff from the Flightline Area has contaminated an unnamed stream and groundwater to the west of the runway. This site has been identified as a part of the base's ongoing Installation Restoration Program (IRP) and its restoration will be an ongoing part of that program.

The SR-71 is closely linked to problems identified by the IRP at this site, known as the West Drainage IRP Site No. 1. Surface runoff which enters the drainage inlet at the SR-71 apron exit the drainage system at the West Drainage. Other parts of the Flightline Area also drain into the West Drainage, but the SR-71 runoff is probably one of the major contributors of hydrocarbons into the West Drainage. (Aerovironment 1987). An oil/waste separator is used at the SR-71 apron, however, it is not able to handle all the flow of contaminated runoff. The bulk of the runoff flows directly to the West Drainage untreated. (Personal Communications, Mr. Kirk Schmalz, Beale AFB Engineering Group).

### **3.4 BIOLOGICAL RESOURCES**

The existing biota were evaluated by a combination of literature reviews, contacts with biological experts, and discussions with base personnel. Extensive interviews were conducted with agency personnel and peer professionals familiar with the area to identify sensitive species known to occur on the base. In addition, the National Wetlands Inventory maps of Beale AFB were also examined to determine if any wetlands had been previously identified.

#### **3.4.1 Sensitive Species and Habitats**

Beale AFB contains extensive open space and a variety of native habitats. The latter include various ponds, freshwater marshes, oak woodlands, riparian woodlands, streams, and vernal pools. Vernal pools are quite extensive west of the existing runway and contain plants included in the California Native Plant Society (CNPS) rare plant inventory. A base-wide wetland inventory was conducted in 1985 by U.S. Department of Agriculture, Soil Conservation Service (USDA SCS). During this

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survey, all wetlands (including vernal pools) were classified and mapped. In addition, the potential occurrence of any CNPS-listed plants were evaluated. Although several CNPS-listed plants are present in vernal pools on the base, no plants listed as threatened or endangered by the State or Federal government are known or expected to occur in other wetland or upland habitats on Beale AFB.

Similarly, no wildlife species listed as threatened or endangered by the State or Federal government are known to occur on Beale AFB. However, the ponds on the base may provide a seasonal habitat for migrating waterfowl, and the open grasslands may provide a seasonal habitat for raptors.

Several federally listed bird species could occur at Beale AFB as vagrants on rare occasions for brief periods of time, including the Aleutian Canada goose, peregrine falcon, and bald eagle. The endangered valley elderberry longhorn beetle could occur on the base; however, there are few elderberry trees present to provide suitable habitat.

#### 3.4.2 Biological Characteristics

The western third of Beale AFB consists of gently rolling annual grasslands dominated by a variety of native and introduced grasses including wild oats (Avena sp.), barley (Hordeum sp.), and lolium (Lolium sp.). Several spring flowering herbs also occur, including brodiaea, wild hyacinth, and vetch.

Several vernal pools occur in the same area of the base. The pools are readily recognized due to the absence of grasses in the center and the predominance of coyote thistle (Eryngium vaseyi) in the pools.

Vernal pools may contain CNPS-listed species that could only be detected during a spring botanical survey. No listed or otherwise sensitive plant or wildlife species have been reported by experts, base personnel, or in literature reviewed to occur in this area. Several large dry ponds previously used for duck hunting are located west of the present runway area along the Reed's Creek drainage. These areas were drained and controlled to minimize the presence of transient birds and other water fowl. The purpose of this was to help reduce the potential for bird air strike hazards (BASH) to occur during flight operations.

Most of the central portion of the base has been previously graded or otherwise disturbed. Introduced grassland or turf vegetation is predominant. No vernal pools are present, nor have any sensitive plant or wildlife species been reported to occur in this area. One potentially sensitive habitat for transient wildlife is a small grove of cottonwoods within 200 feet of Hutchinson Creek adjacent to the containment area.

Portions of Hutchinson creek as it crosses the Southwestern area of the base has been designated as a vernal pool management area. This area has suitable topography and existing characteristics to help establish and protect this sensitive wetland habitat.

The western third of the base consists of rolling hills dominated by annual grassland. There are several drainages that traverse the site. No vernal pools are present. Literature, biological experts, and base personnel have not reported any sensitive wildlife species in this area. Riparian habitat exists along many of the drainages and Dry Creek has been used as a spawning area for salmon during the winter months when flow volumes have been substantial enough to sustain them.

### 3.5 NOISE

#### 3.5.1 Introduction

Noise is one of the byproducts of our society and is produced by a number of sources. The major characteristics of noise are: intensity measured in decibels (dB), frequency measured in cycles per second (Hz), and duration measured in time (hours, minutes, or seconds). Human reaction to noise is affected by all three of these factors. In the case of aircraft, engines generate vibrations in the air that are transmitted to the human ear and interpreted by the brain as noise. Generally, the most troublesome noise occurs at a high-pitched frequency, perceived as loud, and that occurs over long periods of time.

The USAF has developed the Air Installation Compatible Use Zone (AICUZ) concept, which is designed to promote land use development near its airfields in a manner which will not only protect adjacent communities from the noise and safety hazards associated with aircraft operations but also preserve the operational integrity of its airfields. The AICUZ concept specifies a wide variety of types and intensities

of land usage by a series of district, (Compatible Use District or CUD) which consider noise exposure and accident potential near airfields. Compatible development and control of off base land is accomplished through established planning, zoning, or other processes used by agencies having political jurisdiction over these areas. The AICUZ report, created from the AICUZ process, is intended to assist these agencies in the resolution of land use planning questions.

The AICUZ consist of three types of areas. The first areas are Accident Potential Zones (APZ) which are based on past USAF aircraft accidents and installation operational data. The second type, Noise Zones (NZ), are produced by a computer program (NOISE MAP) discussed below. Last are areas designated by the Federal Aviation Administration (FAA) and the USAF for height limitation in the approach and departure zones of the airfield. (USAF, 1984).

### **3.5.2 Existing Noise Conditions**

A series of noise contours that represent current Beale AFB flight activity have been generated from the AICUZ data. These noise contours are expressed as Day-Night Average Sound Levels ( $L_{dn}$ ), a noise measurement representing average 24-hour levels (USAF, 1984). It is recognized that a given level of noise may be more or less tolerable depending on the intensity, duration, and time-of-day of the exposure experienced by an individual. The  $L_{dn}$  measure accounts for people's sensitivity by considering noise levels for night time hours (2200 to 0700 hours) and increasing the noise measured during this period by 10 dB. The day time noise levels are combined with these night time levels and are averaged to obtain  $L_{dn}$  values.

Noise contours are lines showing areas having equal average sound levels and can be used to assess the effects of aircraft noise around airfields. Figure 3-2 shows these contours overlaying a map of the Beale AFB vicinity. Contours are presented for noise levels beginning at 65  $L_{dn}$ . This level is generally regarded as a maximum acceptable exterior exposure for noise-sensitive land uses. The 65  $L_{dn}$  contour calculated for Beale AFB and its vicinity covers approximately 36,000 acres.

The noise contours were developed using the computer program NOISEMAP, developed by the U.S. Department of Defense (DoD). This program generally



requires as input a description of the runway system and numbers of aircraft operations by aircraft type for day and night and for each flight corridor/runway combination. NOISEMAP combines these inputs with a library of noise data for each aircraft type and flight profile to compute total noise from operation and produce  $L_{dn}$  noise contours.

### 3.6 SOCIOECONOMICS

The description of socioeconomic factors is couched in a geographical context comprising primarily Yuba County, but also taking account of the surrounding region, as appropriate. Many of the military and civilian personnel of Beale AFB reside off base in Yuba as well as the neighboring counties of Sutter, Butte, Nevada, and Placer. A few reside as far away as Sacramento and its suburbs.

#### 3.6.1 Demographics

Population estimates for Yuba and Sutter Counties are presented in Table 3-4. Yuba county experienced a modest growth trend of between 1.7 percent and 2 percent per year since 1950. The Yuba and Sutter County population is projected to grow less rapidly than the state as a whole over the next several years. The population is expected to experience an average increase of 1.4 percent per year.

#### 3.6.2 Economic Characteristics

Beale AFB lies in the Yuba City Metropolitan Statistical Area (MSA), which is composed of Yuba and Sutter Counties. The resident civilian labor force for Yuba City MSA was 44,700 in 1987, of which 39,450 were employed, while 5,250 (11.7 percent) were unemployed (Cal EDD, 1988). The average number of jobs provided by Yuba City MSA-based employers totaled 34,500 in 1987, indicating that several thousand working residents of the region were employed away from the MSA. The structure of employment in the Yuba City MSA reflects a diversified economy resting on a strong base of agriculture, manufacturing, commerce, and government. Table 3-5 provides the composition of wage and salary employment for the Yuba City MSA in 1987.

The California Employment Development Department (CalEDD) projects modest growth of employment in the Yuba City MSA. Between 1987 and 1989,



TABLE 3-4

## Estimated Population of Communities Surrounding Beale AFB

	<u>Population</u>
Yuba County	57,300
Marysville	11,850
Wheatland	1,890
Unincorporated Area	43,600
 Sutter County	 62,500
Yuba City	24,600
Live Oak	4,100
Unincorporated Areas	33,800
 Total Yuba and Sutter Counties	 120,000
 Total Urban	 42,500

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Source = CalDOF 1989

Note = Details may not add to totals because they  
have been rounded.

TABLE 3-5

Annual Average Wage and Salary Employment  
Yuba City Metropolitan Statistical Area, 1987  
(Yuba and Sutter Counties)

<u>Economic Sector</u>	<u>Number of Jobs</u>
Total agriculture, forestry, and fishing	5,200
Agriculture production	4,725
Agricultural services, forestry and fishing	475
Total nonagricultural	29,300
Construction and mining	1,850
Manufacturing	3,200
Food & kindred products	1,100
Lumber & wood products	1,225
Other manufacturing	875
Transportation and public utilities	1,275
Wholesale trade	1,325
Retail trade	6,300
Finance, insurance, and real estate	1,425
Services	5,925
Government	8,025
Federal	1,475
State	850
Local & education	5,700
Total employment	34,500

Source: CalEDD, 1988.

Note: Employment is reported by place of work. Details may not add to totals because they have been rounded.

CalEDD estimated that the total number of jobs in the region would increase by about 850, or about 2.5 percent. The retail trade sector was expected to experience the largest increase of any sector during the period. Next strongest are services and government jobs (Cal EDD, 1988). These projections do not take into account possible USAF actions such as deactivation of the SR-71 program.

Yuba and Sutter Counties were projected to have relatively slow population growth rates compared to neighboring Placer and Nevada Counties. Besides these two latter counties, the other central foothill counties and those around Sacramento are all projected to grow more rapidly than Yuba and Sutter in the near future (CCSCE, 1988), implying greater employment opportunities. Similar projections hold for the growth of personal income in the area.

Personal income levels in the Yuba City MSA have been lower, on a per capita basis, than the statewide averages. In 1987, the per capita income for the MSA was \$12,158 compared to the statewide average of \$17,841. The statewide average breaks down into a metropolitan portion average of \$18,044 per capita, and a nonmetropolitan area average of \$13,299 per capita. On this latter basis, the Yuba City MSA's per capita income is close to the statewide nonmetropolitan area average (BEA, 1989).

The Beale AFB Annual Report FY 1988 Economic Resource Impact Statement (ERIS) indicates that the base had a total of 4,642 personnel directly connected with host and tenant activities in FY 1988, of whom 4,142 were military and 500 were civilians. An additional 748 civilian and contractor personnel were employed in the Base Exchange, private on-base business, and contractor assignments (Beale AFB 9th SRW/ACC, 1988).

The ERIS estimates for payroll and expenditures spent in a 50-mile radius "Economic Impact Region" (EIR) are presented in Table 3-6.

The Environmental and Contract Planning Office (9th CSG/DEEV) of Beale AFB prepared a "Civilian/Military Locator Report" during November/December 1988. The report counted 4,183 military personnel and dependents, of which 1,411 were living off base within the 50-mile EIR. An additional 494 civilian employees of

**TABLE 3-6**  
**Estimated Payroll & Expenditures Spent in EIR and**  
**Estimated Secondary Job Creation**

	<u>Millions of Dollars</u>
Total Military & Civilian Payroll	104.62
Payroll Spent in EIR	58.6
Non-Payroll Expenditures	40.0
Construction Activities	25.1
Services & Supplies	15.4
Non-Payroll Expenditures Spent in EIR	258.7
Cumulative Impact of Spending in EIR (considering multiplier effects)	258.7
Secondary Job Creation Due to Expenditures	1,732 jobs

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Source: Beale AFB 9th SRW/ACC, 1988.

Note: Details may not add to totals because they have been rounded.

host and tenant operations were accounted for, living within a 50-mile radius (including 56 on base). The vast majority of the off-base military personnel live close to the base. Similarly, among the civilian employees residing off base most live in nearby Marysville, Yuba City, Penn Valley, and Wheatland.

From these data, it is evident that the bulk of economic stimulus from consumption spending by Beale AFB personnel and civilian employees accrues to Yuba and Sutter Counties. Secondary effects radiate to the larger central California region through operation of employment and income multiplier effects.

### **3.7 Air Safety**

#### **3.7.1 Base Facilities**

The base has one active concrete runway, which is 12,000 feet long and 300 feet wide. There are asphalt overruns of 1,000 feet on the south and 2,250 feet on the north. The runway is capable of handling any aircraft in the Air Force inventory.

The Air Force maintains 3,000 foot by 3,000 foot Clear Zones at each end of the runway because of the significantly high accident potential in these areas. Within the Clear Zones, accident potential is so high that the necessary land use restrictions prohibit economic use of the land. Accident Potential Zones are less critical than the Clear Zones but still possess significant potential for accidents. Accident Potential Zones I are 3000 feet by 5000 feet areas adjacent to the Clear Zones. Accident Potential Zones II are 3000 feet by 7000 feet areas adjacent to Accident Potential Zones I. These three zones (Clear Zones, Accident Potential Zone I, and Accident Potential Zones II), combine to form an area of restricted activity that extends to 15,000 feet from the runway threshold. (USAF, 1984). A 1,000-foot safety zone on each side of the runway center line, a 200-foot safety zone from the center of each taxiway, and a 125-foot minimum safety zone from outside the aprons are also maintained. Hazardous cargo pads are located at the base, with a 1,250-foot safety distance required between hazardous cargos and inhabited structures.

### **3.7.2 Flying Operations**

Flying operations at Beale include three types of reconnaissance aircraft, aerial refueling aircraft, and four types of training aircraft. Information on flying operations are summarized in Table 3-7. A portion of T-38 and KC-135 operations shown in this table are in direct support of the SR-71 program.

Traffic patterns for Beale AFB are established according to Air Force directives, with safety and noise abatement considerations foremost. Prevailing winds are from the south about 90 percent of the time; thus, the majority of takeoffs are toward the south. The majority of the flying activity takes place east of the airfield and is regulated to a southeasterly flow. This means that most takeoffs are toward sparsely populated rural areas in Yuba and Placer counties. The northern patterns also fly over sparsely populated areas.

Flying operations are coordinated with the FAA, and flight paths are integrated to minimize conflict with civilian aircraft operations at Sacramento Metropolitan Airport, Yuba County Airport, Sutter County Airport, Lincoln Airport, and with military operations at McClellan Air Force Base.

## **3.8 Waste Disposal**

### **3.8.1 Solid Waste Disposal**

Solid waste from base operations and households is disposed in a sanitary landfill located on the southern portion of the facility, between the Cantonment Area and the family Housing Area. Vehicles enter the landfill from Gavin Mandry Road.

This landfill, occupying about 40 acres, has been in use since 1981, and is permitted by the State as a Class III (nonhazardous) landfill. The landfill has an estimated total capacity of approximately 3,795,000 cubic yards (cy) of which approximately 845,000 cy are used. The current usage rate is approximately 5219 cy per month or 62,628 cy per year. At this current rate of use, the landfill has an estimated remaining lifetime of 35 to 40 years. (Personal communications, Mr. Greg Miller, Beale AFB Environmental Engineering Department, September, 1989).

TABLE 3-7  
Average Daily Flying Operations at Beale AFB

	<u>Number</u>	<u>Percent of Total Operations</u>
Total Operations Per Day	668	100
SR-71 Operations Per Day	3	5
T-38 Operations Per Day	232	35
KC-135 Operations Per Day	156	23

---

Source: Personal Communications, Linda Merrit, USAF Engineering  
Service Center, Tyndall AFB, Florida

DEA

Waste deposited there is primarily general refuse. Landfill operations consist of trench method disposal and water run-on and run-off controls are present. Management practices include no chemical disposal and covering the waste daily. This landfill was investigated under the Installation Restoration Program in 1985 through 1987 and was found to cause no significant environmental contamination. (Aerovironment, 1987).

### 3.8.2 Wastewater and Sewage Disposal

The entire base, except the Flightline Area, is served by a gravity flow sanitary sewer system. Lift Station No. 5/9 is the main lift station serving the Flightline Area. All sanitary sewer flow is delivered to the Beale AFB Sewage Treatment Plant (STP), where it receives primary and secondary treatment with aeration. The STP has a sustained capacity of 5 million gallons per day and presently peaks at an average flow of 1.45 million gallons per day. During periods of heavy rain, storm water infiltrates the sanitary sewer system and at times causes an overflow condition if operators do not meter flow into the plant by backfilling the sanitary lines (PAT, 1989). To date, this has not caused significant problems.

During summer months, the aerated secondary effluent is used to water the golf course; otherwise it is discharged to Hutchinson Creek. The California Regional Water Quality Control Board (CRWQCB) issued a National Pollution Discharge Elimination System (NPDES) permit to Beale AFB to discharge their treated wastewater. A cease-and-desist order has been issued by the CRWQCB requiring Beale AFB to bring its wastewater discharge into compliance with the requirement of their permit (O'Haire, 1989).

A separate wastewater treatment plant, adjacent to the STP treats wastewater from the reconnaissance photo lab. This area was investigated under IRP. The STP was not identified or investigated under IRP.



## **4.0 ENVIRONMENTAL CONSEQUENCES OF THE PROPOSED ACTION**

### **4.1 INTRODUCTION**

This section provides an evaluation of potential environmental consequences for each of the environmental disciplines discussed in Section 3.0 that would result from implementation of the proposed action. Cumulative impacts from this proposed action and an unrelated proposed action to relocate the SUNT at Beale AFB from nearby Mather AFB will be addressed in a separate EIS being prepared to assess potential impacts related to the SUNT move in accordance with information published in the Federal Register on 8 February 1989 in the NOI for the EIS.

### **4.2 CONSEQUENCES TO THE PHYSICAL AND HUMAN ENVIRONMENTS**

#### **4.2.1 Air Resources**

Emissions data for the SR-71 aircraft and flight operations information specific to the SR-71 program are unavailable. (Personal communication, Beale AFB Environmental Engineering Staff, September 8, 1989). Therefore the quantitative reduction of emissions resulting from the SR-71 withdrawal can not be determined. However due to the relatively small percentage of SR-71 and supporting aircraft flight activity as compared to total base flight activity the withdrawal will likely result in a small and insignificant reduction in total base air emissions. This will result in a small but beneficial impact to local and regional air quality.

#### **4.2.2 Water Resources**

Based upon current base water usage of approximately 2.5 mgd in the winter months and 6.0 mgd in the summer month, the SR-71 withdrawal and subsequent reduction in base personnel will reduce this daily water usage to approximately 2.3 mgd in the winter and 5.3 mgd in the summer. This will result in a small but beneficial reduction in demand to local water supplies.

Deactivation of the SR-71 program at Beale AFB will not significantly impact groundwater or surface water resources at Beale AFB. Accidental fuel spillage and subsequent contamination of drainage west of the runway that has previously occurred

through normal SR-71 operations will no longer occur. This will be a small but beneficial impact.

#### **4.2.3 Biological Resources**

Terrestrial and aquatic resources at Beale AFB will not be impacted as a result of the proposed action. Existing grassland and riparian habitat along drainages southwest of the existing runway that have been previously affected by contaminated surface runoff from the runway area as a result of SR-71 operations will be exposed to smaller quantities of this type of runoff. This will result in an overall improvement to the quality of these habitats in this portion of the base.

#### **4.2.4 Noise**

Noise contours calculated to represent base activities without the SR-71 program are present in Figure 4-1. These data found the 65  $L_{dn}$  contour to cover approximately 35,600 acres. This is approximately 400 fewer acres exposed to noise levels in excess of 65  $L_{dn}$ , or about one percent of the acres so exposed under current conditions (USAF, 1984). However, it is not anticipated that population centers or other sensitive receptors will experience significant change in noise exposure. This would have small but beneficial impact on the surrounding community.

Beale AFB received approximately 217 noise complaints during 1988; 95% of which were directly attributed to SR-71 operations (Captain Ronquillo, Personal Communications, 1989). These complaints originated from different areas across the western portion of the United States in the vicinity where SR-71 flight training patterns have been established. These complaints were usually the result of sonic booms generated by the SR-71 during flight training exercises. The deactivation of the SR-71 program would eliminate the major contributor of noise complaints received by Beale AFB and sonic booms over the western United States as a result of cessation of SR-71 flight training exercises.

#### **4.2.5 Socioeconomics**

Implementation of the proposed action will result in the elimination of approximately 67 officer, 519 enlisted and 38 civilian positions at Beale AFB. These numbers are indicated below:



<u>Category</u>	<u>Existing Personnel</u>	<u>SR-71 Personnel</u>	<u>SR-71 Personnel as Percent of total</u>
Officer	562	67	12
Enlisted	3,226	519	16
Civilian	<u>476</u>	<u>38</u>	<u>8</u>
Total	4,264	624	15

Officer and enlisted personnel will be transferred to other USAF installations or to other function currently operating out of Beale AFB. The loss of 38 civilian job opportunities represents an insignificant adverse impact to the local and regional economic base.

#### **4.2.6 Air Safety**

The deactivation of the SR-71 program at Beale AFB will reduce air traffic at and in the vicinity of the base by more than three percent. Reductions in air traffic will enhance overall air safety since opportunity for aircraft accidents will be reduced. Therefore, the deactivation of the SR-71 program will help to improve air safety in and around Beale AFB.

#### **4.2.7 Waste Disposal**

As stated in Section 3.8 the current landfill usage is about 5219 cy per month or 62, 628 cy per year. The deactivation of the SR-71 and a loss of 624 military and civilian personnel will reduce this amount to 4893 cy per day or about 39,080 cy per year. This will extend the landfill's useful lifetime and result in a small but beneficial impact.

### **4.3 MITIGATION MEASURES**

No mitigation measures are required for the proposed action. All of the impacts identified are small but beneficial with the exception of the loss of jobs for approximately 38 civilian personnel. This adverse impact is deemed insignificant with respect to the local/regional economic base. Deactivation of the SR-71

program will not affect the investigations/remedial action that are ongoing with respect to Beale AFB's IRP program.

**4.4 ADVERSE EFFECTS THAT CANNOT BE AVOIDED IF THE PROPOSED ACTION IS IMPLEMENTED**

The only unavoidable adverse impact as a result of implementation of the proposed project would be the loss of approximately 38 civilian positions. Military personnel will be either transferred to other USAF installations or assigned to other functions at Beale AFB. The loss of about 38 civilian employment opportunities is expected to be insignificant with respect to the local and regional economic base.

**4.5 IRREVERSIBLE AND IRRETRIEVABLE COMMITMENT OF RESOURCES**

No irreversible and irretrievable commitment of resources is expected to occur as a result of the deactivation of the SR-71 program.

**4.6 RELATIONSHIP BETWEEN SHORT-TERM USES AND LONG-TERM PRODUCTIVITY**

Implementation of the proposed action is not expected to result in any long-term adverse impacts on the productivity of the environment. Existing SR-71 facilities that will no longer be needed under the current program (hangers, maintenance and operating facilities, pipelines, fuel tanks) will become available for other compatible uses. As facilities become available as a result of the SR-71 deactivation, other tenants and/or host activities will acquire/modify these facilities for their own uses.

Included in the recommendations of the Commission on Base Realignment and Closure, which were approved by the Secretary of Defense and the U.S. Congress, is a recommendation to relocate the 323rd Flying Training Wing--the Specialized Undergraduate Navigation Training (SUNT)--currently operating out of Mather AFB to Beale AFB. When implemented as required by Congress, the SUNT may become users of many facilities currently occupied by the SR-71 program.

## 5.0 REFERENCES

- Aerovironment, Inc., May 1987. Installation Restoration Program Phase II-- Confirmation/Quantification Stage 1 Final Report for Beale Air Force Base, Marysville, California.
- Air Force Regulations 19-2.
- Beale Air Force Base, 9th SRW/ACC, 1988. Beale Annual Report FY 1988, Economic Resource Impact Statement.
- Beale Air Force Base, Housing Assistance Office, 9th CSG/DEEV, November/December 1988. Civilian/Military Locator Report.
- Bureau of Economic Analysis (BEA), U.S. Department of Commerce, April 1989. Survey of Current Business, Vol.69, No.4.
- California Air Resources Board (CARB), Technical Support Division, 1988, Air Quality Data Summaries 1985-1987.
- California Air Resources Board (CARB), Technical Support Division, Emission Inventory Branch, December 1986. Emission Inventory 1983.
- California Department of Finance, Demographic Research Unit, (Cal DOF), May 1989. Population Estimate of California Cities and Counties, January 1, 1988 to January 1, 1989. Report 89 E-1.
- California Employment Development Department (Cal EDD), May 1988. Annual Planning Information: Yuba City Metropolitan Statistical Area (Sutter-Yuba County), 1988-1989.
- Center for Continuing Study of the California Economy (CCSCE), 1988. California County Projections, 1988 Edition.
- EDAW, Inc., 1988. Draft Base Comprehensive Plan for Beale Air Force Base, California.
- O'Haire, Karen, California Regional Water Quality Control Board, letter to Hugh Stirts, U.S. Department of the Air Force of March 21, 1989.

- Planning Assistance Team (PAT), March 1989. Base Realignment Siting Analysis for Beale Air Force Base, California. Air Force Regional Civil Engineer, Western Region, San Francisco, CA.
- U.S. Air Force (USAF), August 1984. Air Installation Compatible Use Zone (AICUZ). A report to the governments and citizens of the Beale AFB Environs.
- U.S. Department of Agriculture (USDA) Soil Conservation Service, 1985. Beale Air Force Base, Interim Soil Survey.
- U.S. Geological Survey, 1973. Camp Far West, California 1:24,000 topographic quadrangle.
- U.S. Geological Survey, 1973. Wolf, California 1:24,000 topographic quadrangle.
- U.S. Geological Survey, 1973. Wheatland, California 1:24,000 topographic quadrangle.
- U.S. Geological Survey, 1973. Browns Valley, California 1:24,000 topographic quadrangle.
- U.S. Geological Survey, 1973. Smartville, California 1:24,000 topographic quadrangle.
- U.S. Geological Survey, 1973. Rough and Ready, California 1:24,000 topographic quadrangle.

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**APPENDIX A**  
**List of Abbreviations and Acronyms**

AFB	Air Force Base
AFR	Air Force Regulation
AICUZ	Air Installation Compatible Use Zone
APZ	Accident Potential Zone
BASH	Bird Air Strike Hazard
BEA	Bureau of Economic Analysis
CAAQS	California Ambient Air Quality Standards
CalDOF	California Department of Finance
CalEDD	California Employment Development Department
CARB	California Air Resources Board
CCSCE	Center for Continuing Study of the California Economy
CEQ	Council of Environmental Quality
CFR	Code of Federal Regulations
CNPS	California Native Plant Society
CO	carbon monoxide
CRWQCB	California Regional Water Quality Control Board
CUD	Compatible Use District
cy	cubic yard
dB	decibels
DEA	Draft Environmental Assessment
DoD	Department of Defense
EA	Environmental Assessment
EIR	Economic Impact Region
EIS	Environmental Impact Statement
EOD	Explosive Ordnance Demolition
EPA	Environmental Protection Agency
ERIS	Economic Resource Impact Statement
FAA	Federal Aviation Administration
FY	fiscal year

HQ/SAC	Headquarters/Strategic Air Command
Hz	Hertz or cycle per second
IRP	Installation Restoration Program
$L_{dn}$	Day-Night Average Sound Level
MSA	Metropolitan Statistical Area
mgd	million gallons per day
NAAQS	National Ambient Air Quality Standards
NEPA	National Environmental Policy Act of 1969
$NO_2$	Nitrogen dioxide
NOI	Notice of Intent
NPDES	National Pollution Discharge Elimination System
NZ	Noise Zones
$O_3$	Ozone
PAT	Planning Assistance Team
PDEA	Preliminary Draft Environmental Assessment
$PM_{10}$	10-micron particulate matter
ppm	parts per million
SCS	Soil Conservation Service
SRW	Strategic Reconnaissance Wing
$SO_2$	Sulfur dioxide
STP	sewage treatment plant
SUNT	Specialized Undergraduate Navigation Training
$ug/m^3$	micrograms per cubic meters
USDA	United States Department of Agriculture
USAF	United States Air Force

Cm to 9 Nov 89

**DRAFT**  
**ENVIRONMENTAL ASSESSMENT**

**DEACTIVATION OF THE SR-71 PROGRAM AT**  
**BEALE AIR FORCE BASE, CALIFORNIA**

**DEPARTMENT OF THE AIR FORCE**  
**HEADQUARTERS, STRATEGIC AIR COMMAND**  
**OFFUTT AIR FORCE BASE, NEBRASKA**

**OCTOBER 1, 1990**

## SUMMARY

**Purpose**

The United States Air Force (USAF) Strategic Air Command Headquarters (HQ/SAC) has proposed to deactivate the SR-71 program currently operating as part of the 9th Strategic Reconnaissance Wing's (9th SRW) mission at Beale Air Force Base (AFB) near Sacramento, California. This mission change is anticipated to take place coincident with the beginning of fiscal year 1991.

**Need For The Proposed Action**

The USAF HQ/SAC has determined that it cannot continue the SR-71 program in light of its high operating cost, required manpower needs, and necessary ground-based support functions and facilities. The reconnaissance mission will be accomplished through continued U2 flights and satellite technology. In accordance with NEPA and CEQ regulations, USAF HQ/SAC has formulated the proposed action and alternatives. Section 2.0 of this Environmental Assessment (EA) presents a detailed discussion of the proposed actions and alternatives; and provides a justification for the proposed action.

**Existing Development**

Existing personnel at Beale AFB are detailed below.

	<u>Total Beale AFB Personnel</u>	<u>Total SR-71 Personnel</u>	<u>SR-71 Personnel as Percent of Total</u>
Officers	562	67	12
Enlisted	3,226	519	16
Civilian	<u>476</u>	<u>38</u>	<u>8</u>
Total	4,264	624	15

Development at Beale AFB is basically confined to three functional areas.

### Summary Of The Current SR-71 Program

The 9th SRW maintains and operates a small fleet of Lockheed SR-71 aircraft from Beale AFB for the principal purpose of acquiring worldwide high-altitude flight reconnaissance information and other data to support United States strategic and/or national defense objectives.

The Flightline Area of Beale AFB serves as the principal location for the SR-71 operation and maintenance facilities. These facilities include hangers, personnel support facilities, a unique flight simulator facility, maintenance and repair facilities, and planning and operational facilities. In addition to these ground-based support facilities, the SR-71 program also includes the use of T-38 aircraft (tandem-seated, fighter-type aircraft) used by SR-71 flight crews for training exercises, and Boeing KC-135Q tanker aircraft that provide in-flight air refueling support.

### Scope

Major issues to be addressed in this EA were identified through discussions with USAF personnel who are familiar with the mission and operation requirements of the SR-71 program, and review of a previous EA prepared by the USAF dated September 1988 for a proposed, but unrelated, mission change for SR-71 and T-38 aircraft at Beale AFB. Based on these discussions and review, it was determined that the proposed action and alternatives would have the potential to affect the following environmental disciplines:

- o Air resources;
- o Water resources;
- o Biological resources;
- o Noise;
- o Socioeconomics;
- o Air Safety; and
- o Waste disposal.

Therefore, these environmental disciplines have been investigated and addressed in this EA.

It was further established through the discussions and review mentioned above that the following environmental disciplines would not be affected by the proposed action and alternatives:

- o Earth resources;
- o Zoning and political boundaries;
- o Archaeological, cultural, and historic resources;
- o Visual and aesthetic values;
- o Ground transportation; and
- o Utilities.

**Impact**

All of the impacts identified are small but beneficial with the exception of the loss of jobs for approximately 67 officers, 519 enlisted and 38 civilian personnel. This adverse impact is deemed insignificant with respect to the local/regional economic base. Deactivation of the SR-71 program will not affect the investigations/remedial action that are ongoing with respect to Beale AFB's Installation Restoration Program (IRP) program. No mitigation measures are required for the proposed action.

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## **1.0 PURPOSE OF AND NEED FOR THE PROPOSED ACTION**

### **1.1 PURPOSE**

The United States Air Force (USAF) Strategic Air Command Headquarters (HQ/SAC) has proposed to deactivate the SR-71 program currently operating as part of the 9th Strategic Reconnaissance Wing's (9th SRW) mission at Beale Air Force Base (AFB) near Sacramento, California. This mission change is anticipated to take place coincident with the beginning of fiscal year 1991. This Environmental Assessment (EA) is prepared in accordance with the National Environmental Policy Act of 1969 (NEPA), as stipulated in regulations promulgated by the Council on Environmental Quality (CEQ) (40 CFR 1500-1508, November 1978), and Air Force Regulation (AFR) 19-2.

### **1.2 NEED FOR THE PROPOSED ACTION**

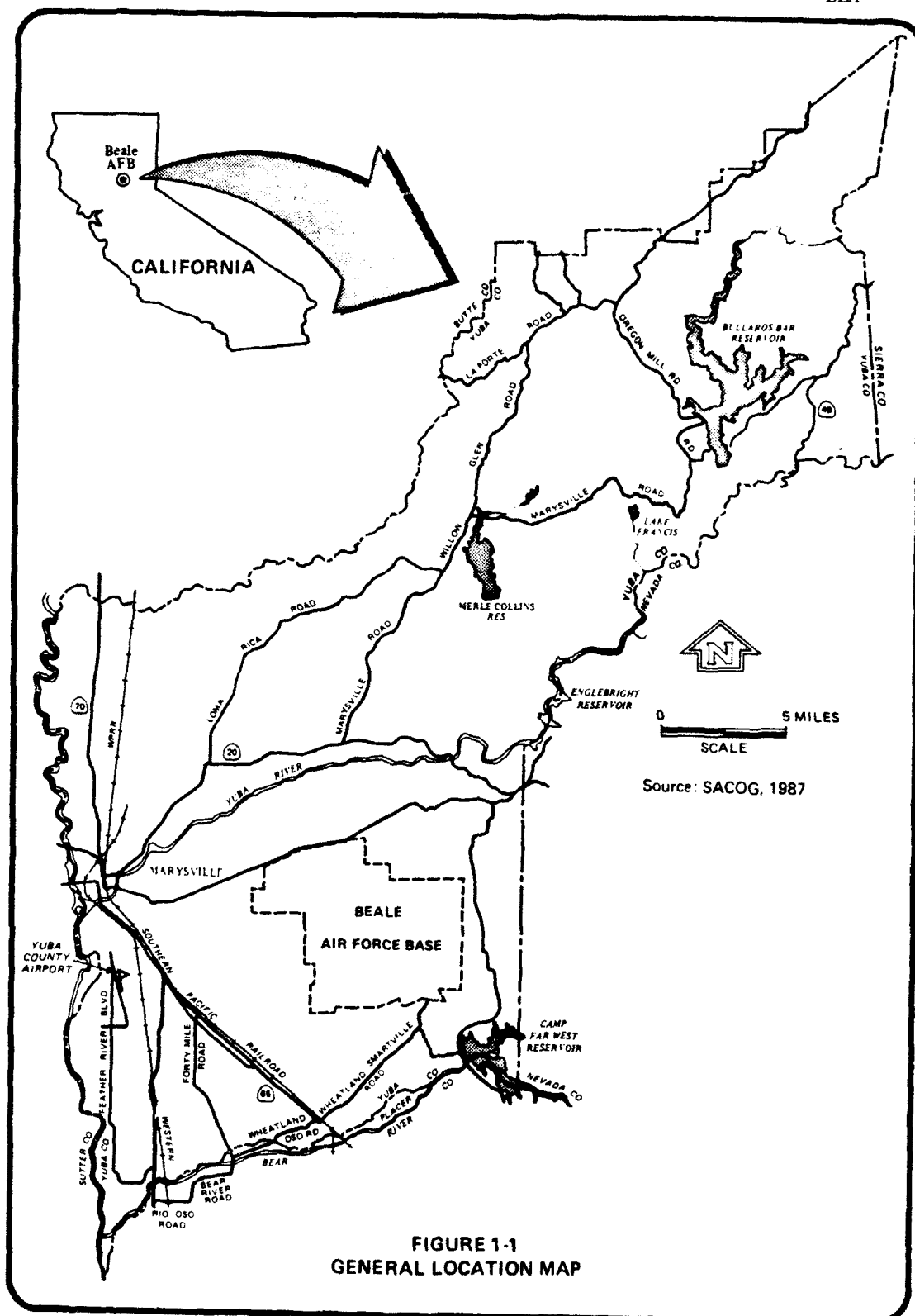
The USAF HQ/SAC has determined that it cannot continue the SR-71 program in light of its high operating cost, required manpower needs, and necessary ground-based support functions and facilities. The reconnaissance mission will be accomplished through continued U2 flights and satellite technology. In accordance with NEPA and CEQ regulations, USAF HQ/SAC has formulated the proposed action and alternatives. Section 2.0 of this EA presents a detailed discussion of the proposed actions and alternatives; and provides a justification for the proposed action.

### **1.3 LOCATION, HISTORY, AND MISSION OF BEALE AFB**

#### **1.3.1 Location**

Beale AFB currently consists of 22,944 acres of government-owned land in Yuba County, approximately 40 miles north of the city of Sacramento and 13 miles east of Marysville, in north-central California (Figure 1-1). The foothills of the Sierra Nevada mountains border the eastern edge of the base. The Yuba River to the north, the Bear River to the south, and Camp Far West Reservoir to the southeast are the nearest large water sources. Other neighboring cities are Yuba City, 16 miles west; Oroville, 40 miles north; and Grass Valley, 25 miles east.

DEA



### **1.3.2 History**

Beale AFB, named for General Edward Fitzgerald Beale, opened in October of 1942 with more than 86,000 acres of land. During World War II, the camp was used as an infantry training center, a personnel replacement depot, and prisoner-of-war camp. During the war, the camp supported a military population of more than 60,000 personnel.

Camp Beale was declared surplus in 1947 and in early 1948, transfer was arranged to the United States Air Force. The base was used for bombardier-navigator training. In 1951, Headquarters USAF announced the reactivation of the Beale Bombing and Gunnery Range as a training site and officially changed the name to Beale Air Force Base.

During Beale's early years in the Air Force, the base underwent a number of jurisdictional changes, at times being a part of Air Training Command, Continental Air Command, Aviation Engineer Force, and finally the Strategic Air Command. Early in 1959, it was announced that the 14th Air Division would be assigned to Beale AFB. In July 1959, Beale received its first KC-135 jet strato tanker, with B-52 bombers arriving shortly afterwards. In September of 1959, it was announced that Beale was to be the support base for three Titan missile sites. By 1965, the Titan I missile program had been discontinued, and the squadron was inactivated. Coupled with the inactivation of the missile unit, however, was the beginning of a new era in the history of the base with the activation of the 4200th Strategic Reconnaissance Wing (SRW), later redesignated as the 9th SRW.

### **1.3.3 Mission**

The mission of the 9th SRW is to provide global aerial reconnaissance and air refueling support in accordance with provisions of the Emergency War Order in wartime. In peacetime, reconnaissance flights and reconnaissance air refueling support are conducted in response to the Peacetime Aerial Reconnaissance Program and contingency tasking from the National Command Authorities and the Joint Chiefs of Staff. At the same time, the wing supports the requirements of unified and specified commands. After raw intelligence data are collected by U-2, TR-1 and

SR-71 aircraft, the 9th SRW processes, reports, and disseminates intelligence products to specified civilian and military users.

To accomplish this global commitment, the 9th SRW operates from Beale AFB, with several worldwide detachments employing Lockheed SR-71 and U-2 aircraft and the Boeing KC-135Q tanker aircraft. The KC-135Q provides exclusive air refueling for the SR-71, supports U-2 and TR-1 deployments and other strategic airlift requirements, and provides conventional air refueling support for other Air Force aircraft. Northrop T-38A aircraft provide an integral part of the training of SR-71, U-2, and TR-1 pilots and KC-135Q copilots through specially tailored flying programs that meet the requirements of each pilot's specialty.

The major tenant organizations at Beale AFB are the 14th Air Division and the 7th Missile Warning Squadron. The 14th Air Division's mission is to ensure that units assigned to the division are capable of conducting worldwide strategic reconnaissance, and maintaining an airborne command post in continuous operation.

The primary and secondary mission of the 7th Missile Warning Squadron's PAVE PAWS system is to provide warning and attack assessment of a sea-launched and/or intercontinental ballistic missile attack aimed at the continental United States and Southern Canada. The tertiary mission is to provide surveillance, tracking, reporting, and space object identification for SPACE TRACK operations.

#### **1.4 EXISTING DEVELOPMENT**

Existing personnel at Beale AFB are detailed below.

	<u>Total Beale AFB Personnel</u>	<u>Total SR-71 Personnel</u>	<u>SR-71 Personnel as Percent of Total</u>
Officers	562	67	12
Enlisted	3,226	519	16
Civilian	<u>476</u>	<u>38</u>	<u>8</u>
Total	4,264	624	15



Development at Beale AFB is basically confined to three functional areas. These areas are the Flightline Area, the Cantonment Area, and the Family Housing Area. Figure 1-2 presents these three areas in relationship to one another.

The Flightline Area, besides containing the mission-essential runway and associated taxiway and aprons, includes aircraft operation and maintenance facilities, mission support activities, supply activities, and ground vehicle maintenance and fueling activities. Additionally, Explosive Ordnance Demolition (EOD) and fire protection and training functions are carried out here, as are some administrative operations. The Flightline Area has a small compliment of community commercial and service facilities, as well as a small recreational facility. The SR-71 program primarily utilizes facilities in the Flightline Area. However, information on the exact location of SR-71 facilities throughout Beale AFB is not available.

The Cantonment Area supports many of the administrative functions and organizations operating in the Flightline Area. This area is also the central business district for the base, dominated by administrative, community commercial, unaccompanied housing, and industrial uses. Social, maintenance, medical, and spiritual facilities are located here as are base engineering and environmental operations.

The Family Housing Area provides base housing for officers and enlisted personnel. A fire station and an administrative office are also present here. A number of other community service and commercial activities are located here as well as recreational facilities. Figures 1-3 and 1-4 present locations of various facilities in each of these three areas.

### **1.5 SUMMARY OF THE CURRENT SR-71 PROGRAM**

The 9th SRW maintains and operates a small fleet of Lockheed SR-71 aircraft from Beale AFB for the principal purpose of acquiring worldwide high-altitude flight reconnaissance information and other data to support United States strategic and/or national defense objectives. The SR-71 program at Beale AFB has established and maintained Beale AFB as its main hub of operations since the SR-71 aircraft and support facilities became operational in the late 1960's and early 1970's. The SR-71

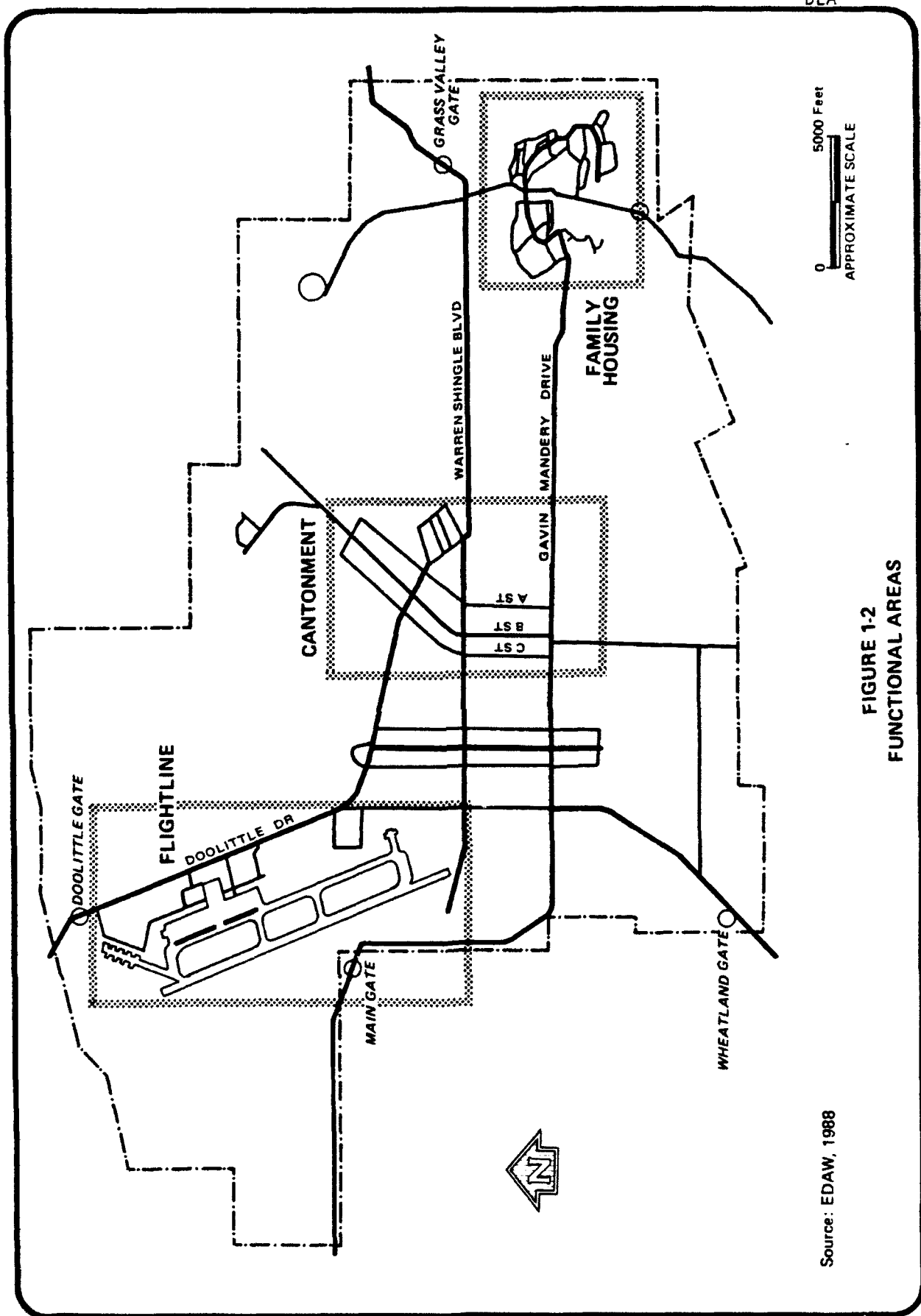
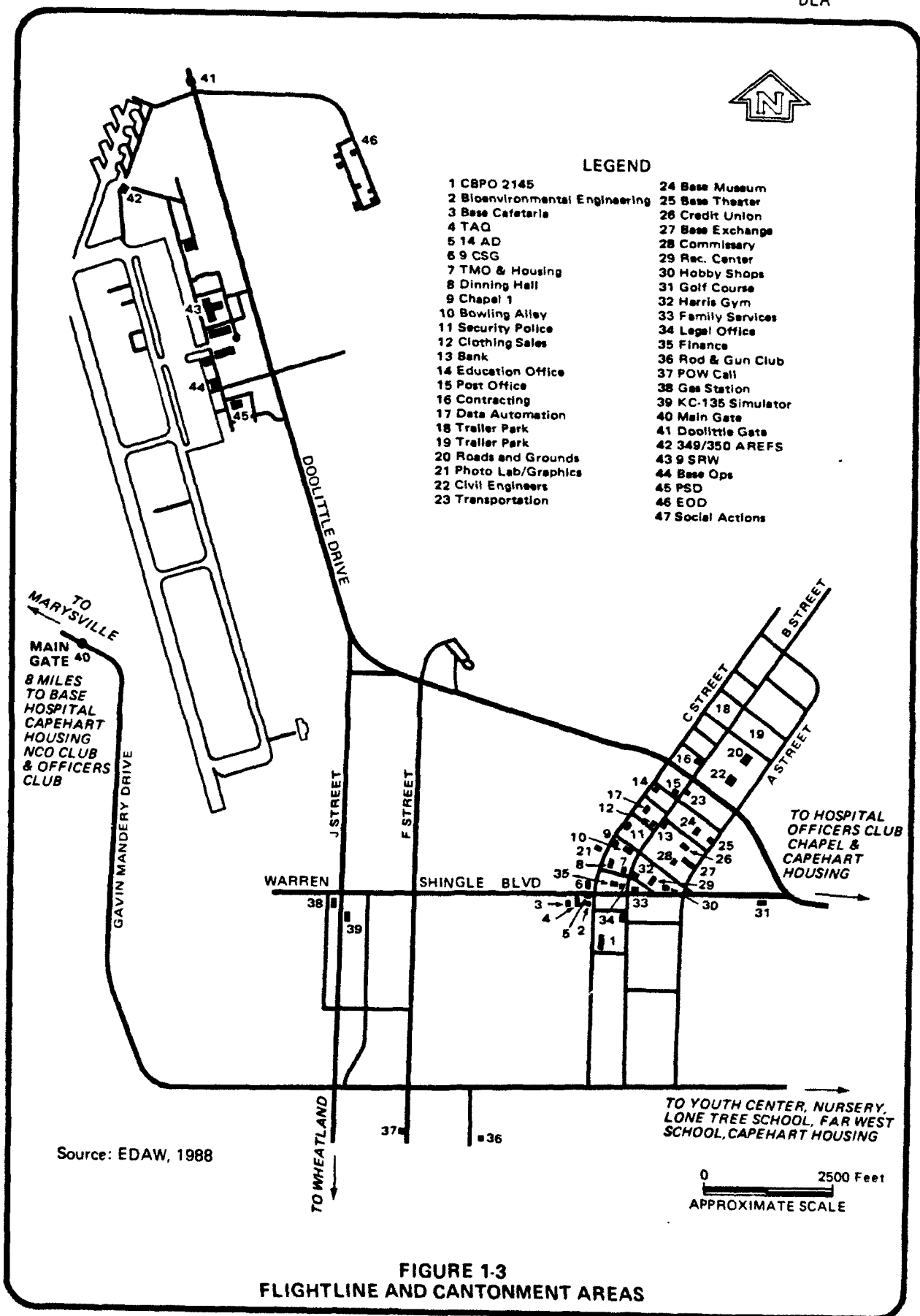


FIGURE 1-2  
FUNCTIONAL AREAS

Source: EDAW, 1988



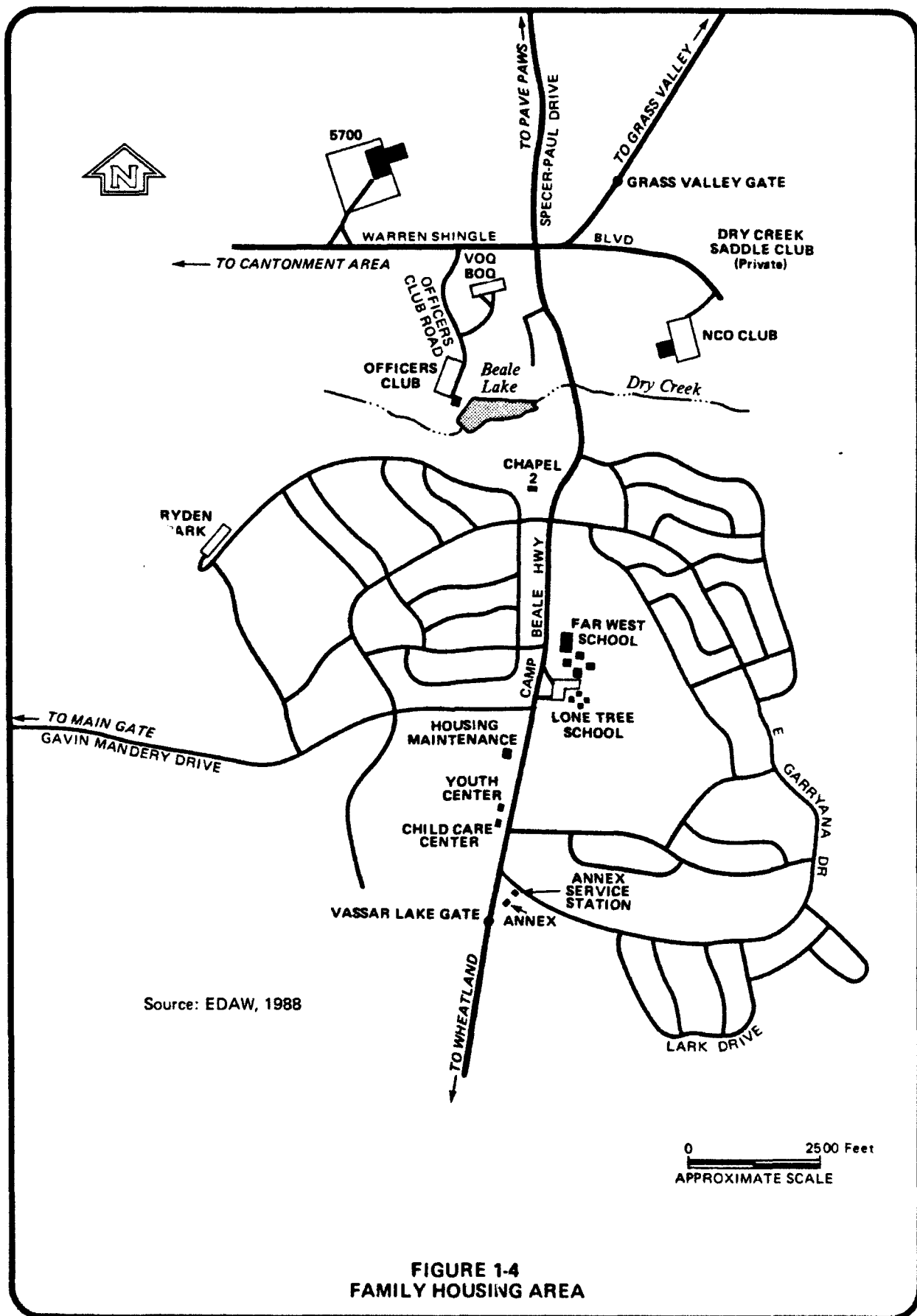


FIGURE 1-4  
FAMILY HOUSING AREA

program is currently operated by a staff of approximately 67 officers, 519 enlisted personnel, and 38 civilians for a total of 624 personnel at Beale AFB. Section 1.4 provides details of total personnel at Beale AFB.

The Flightline Area of Beale AFB serves as the principal location for the SR-71 operation and maintenance facilities. These facilities include hangers, personnel support facilities, a unique flight simulator facility, maintenance and repair facilities, and planning and operational facilities. In addition to these ground-based support facilities, the SR-71 program also includes the use of T-38 aircraft (tandem-seated, fighter-type aircraft) used by SR-71 flight crews for training exercises, and Boeing KC-135Q tanker aircraft that provide in-flight air refueling support.

Principal jet aircraft operating from Beale AFB and the average daily takeoff operations by type of aircraft are shown below (USAF, 1984).

<u>Aircraft Type</u>	<u>No. of Takeoffs</u>	<u>Percentage</u>
T-38	68	39
U-2/TR-1	62	36
KC-135	27	16
Transients	10	6
SR-71	<u>6</u>	<u>3</u>
	173	100

As shown by the above numbers, 3 percent of daily flight operations are SR-71 aircraft. It should be noted that the number of T-38 and KC-135 takeoffs shown above do not necessarily represent direct support of the SR-71 program only. Data are not available that break down flight information for aircraft takeoffs which directly support SR-71 flight operations. T-38 trainers and KC-135 tanker operations also support other USAF functions at Beale AFB in addition to the SR-71.

The SR-71 mission is maintained at a high level of preparedness. In order to accommodate this, numerous flight training patterns are used by SR-71 aircraft

throughout the western United States. These flight patterns have been developed to provide adequate training areas for SR-71 crews and avoid populated or otherwise sensitive geographic areas. The unique flight characteristics of the aircraft (maximum altitudes above 80,000 feet and maximum airspeeds in excess of Mach 3) have been known to cause loud sonic booms. Ninety-five percent of the 217 noise complaints received by Beale AFB personnel in 1988 have been attributed to these sonic booms (Personal Communication, Captain Ronquillo, 1989).

As a result of air speeds in excess of Mach 3, the aircraft creates quite high skin-friction temperatures during flight. The aircraft actually expands several inches in flight as a result of these high-skin temperatures. This design consideration required the development of a unique jet fuel (JP-7) for use in the SR-71. JP-7 is typical jet fuel with special additives that elevate its flash point to avoid inopportune and unanticipated combustion during flight.

The ability for the aircraft to thermally expand due to increased aircraft temperature in flight has caused fuel to leak from the aircraft when it is at rest at ground-level ambient temperatures. Over the years, this fuel leakage combined with surface water runoff has contributed to the contamination of a small drainage that leads from the flightline area west of the existing runway, and an area in the vicinity of the SR-71 hangers adjacent to the runway. These locations have been identified as sites 1 and 5 respectively under the Base Installation Restoration Program (Aerovironment, 1987).

#### 1.6 SCOPE

Major issues to be addressed in this EA were identified through discussions with USAF personnel who are familiar with the mission and operation requirements of the SR-71 program, and review of a previous EA prepared by the USAF dated September 1988 for a proposed, but unrelated, mission change for SR-71 and T-38 aircraft at Beale AFB. Based on these discussions and review, it was determined that the proposed action and alternatives would have the potential to affect the following environmental disciplines:

- o Air resources;
- o Water resources;
- o Biological resources;
- o Noise;
- o Socioeconomics;
- o Air Safety; and
- o Waste disposal.

Therefore, these environmental disciplines have been investigated and addressed in this EA.

It was further established through discussions and review that the following environmental disciplines would not be significantly affected by the proposed action and alternatives:

- o Earth resources;
- o Zoning and political boundaries;
- o Archaeological, cultural, and historic resources;
- o Visual and aesthetic values;
- o Ground transportation; and
- o Utilities.

Therefore, in keeping with the spirit and intent of NEPA, the CEQ regulations and AFR 19-2 to focus only on issues affected by a proposed action, these environmental disciplines have not been addressed in this EA.

A separate Environmental Impact Statement (EIS) has been prepared to evaluate potential impacts associated with an unrelated proposed action at Beale AFB to relocate the 323rd Flying Training Wing -- the Specialized Undergraduate Navigation Training (SUNT) -- currently operating out of Mather AFB to Beale AFB. The relocation of the SUNT to Beale AFB was recommended by the Commission on Base Realignment and Closure (Commission) and approved by the Secretary of Defense and the U.S. Congress to improve multiservice training. Therefore, as stated in the Notice of Intent (NOI) for the preparation of the EIS published in the Federal Register and dated 8 February, 1989, an analysis of cumulative impacts resulting from

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the relocation of the SUNT to Beale AFB in conjunction with the deactivation of the SR-71 program has been addressed as part of the SUNT EIS and not included in this EA.

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## **2.0 ALTERNATIVES CONSIDERED INCLUDING THE PROPOSED ACTION**

### **2.1 PROPOSED ACTION**

The SR-71 aircraft will be flown to USAF storage facilities in the Southwest upon completion of mission assignments. These aircraft will be stored in a manner that would allow for their possible reuse at some future date. Other aircraft such as the T-38 and KC-135Q used to support the SR-71 will be reassigned for other training or refueling activities at Beale AFB or other USAF installations. Officers and enlisted military personnel will be reassigned to other USAF duties at Beale or other USAF installations. Civilian personnel associated with the SR-71 will either be reassigned or dismissed.

It is anticipated that the JP-7 fuel facilities (storage tanks, pipelines, pumps, etc.) will be converted to accommodate the use of typical jet fuel for other Beale AFB operations. Other base facilities associated with the SR-71 program, such as hanger space, maintenance, storage, and operation buildings, will remain and become available for other base uses.

### **2.2 NO ACTION ALTERNATIVE**

The impacts identified by implementing the proposed action (Section 4.0 of this document) would not occur as a result of implementation of this alternative. These alternatives would result in continued expenditure of funds necessary to support the SR-71 at its current operating level. In light of Department of Defense (DoD) budget constraints and an overlapping capability to provide and accomplish reconnaissance mission objectives through the use of continued U2 flights and satellite technology, the USAF HQ/SAC determined this alternative was inappropriate for further consideration.

### **2.3 ALTERNATIVE TO REDUCE THE CURRENT SR-71 PROGRAM**

The impacts identified by implementing the proposed action (Section 4.0 of this document) would be similar to these resulting from implementing this alternative. This alternative would involve a reduction in aircraft flight activities, manpower, and necessary support facilities, but not total elimination of them. However, due to the

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required high level of preparedness maintained by SR-71 flight crews, training and maintenance operations, and the required ability to respond to situations in an emergency or on short notice, this option was deemed not feasible if the current mission objectives for the SR-71 program are to be realized. In addition, this alternative provides a redundant capability in light of U2 and satellite reconnaissance capabilities. Therefore, this alternative was deemed not feasible.

### 3.0 AFFECTED ENVIRONMENT

#### 3.1 INTRODUCTION

This section presents discussions of existing conditions for specific disciplines that may have the potential to be affected by implementation of the proposed action. These disciplines include air resources, water resources, biological resources, noise, socioeconomics, air safety, and solid and liquid wastes.

As discussed in Section 1.6, the scoping process determined that the following environmental disciplines would not be impacted by the SR-71 drawdown: earth resources; zoning and political boundaries; archaeological, cultural and historic resources; visual and aesthetic values; ground transportation; and utilities. Therefore, these disciplines are not addressed in the following sections.

#### 3.2 AIR RESOURCES

Beale AFB is located in southern Yuba County and occupies portions of the Sacramento Valley and Mountain Counties Air Basins for which the California Air Resources Board (CARB) reports ambient air quality data. The closest air monitoring stations reporting to the CARB are Auburn, Yuba City, Pleasant Grove, and North Highlands. These stations monitor ozone ( $O_3$ ), sulfur dioxide ( $SO_2$ ), nitrogen dioxide ( $NO_2$ ), carbon monoxide (CO), and 10-micron particulate matter ( $PM_{10}$ ). The Auburn monitor, located approximately 16 miles southeast of Beale AFB, collects  $O_3$  data. The Yuba City monitoring station is located 13 miles west-northeast of the base and monitors  $O_3$  and  $PM_{10}$ . The Pleasant Grove station is situated approximately 20 miles south of Beale AFB and collects  $O_3$ ; and the North Highlands monitor is approximately 5 miles south of the Pleasant Grove station and samples  $SO_2$ ,  $O_3$ , CO, and  $NO_2$ . Air quality background concentrations for 1985 through 1987 collected at these stations are presented in Table 3-1.

Maximum background air quality data from the above-mentioned table are compared to National Ambient Air Quality Standards (NAAQS) and California Ambient Air Quality Standards (CAAQS) in Table 3-2. This table shows that State

TABLE 3-1

**Summary of Relevant Air Quality Data  
Surrounding Beale Air Force Base  
1985-1987**

Station	Year	O <sub>3</sub> (ppm)			SO <sub>2</sub> (ppm)			CO (ppm)			NO <sub>2</sub> (ppm)			PM <sub>10</sub> (ug/m <sup>3</sup> )		
		1 Hour	Annual	1 Hour	3 Hour <sup>1</sup>	24 Hour	Annual	1 Hour	8 Hour	1 Hour	1 Hour	Annual	24 Hour	Annual	24 Hour	Annual
Auburn	1985	.14	.037											-	-	-
	1986	.17	.039											-	-	-
	1987	.18	.041											-	-	-
Yuba City	1985	.11	.030										78	36.2		
	1986	.14	.030										98	32.7		
	1987	.12	.035										86	34.9		
Pleasant Grove	1985	.12	.030													
	1986	.14	.028													
	1987	.14	.030													
North Highlands Blackfoot	1985	.18	.024	.01	.009	.008	0	10	6.3	.09	.014		-	-	-	-
	1986	.16	.028	.01	.009	.007	0	10	6.3	.09	.014		-	-	-	-
	1987	.14	.027	-	-	-	-	9	7.3	.10 <sup>2</sup>	.022 <sup>2</sup>		-	-	-	-

<sup>1</sup>Estimated as 90 percent of 1 hour measured concentration (EPA, 1977).

<sup>2</sup>North Highlands station ceased monitoring NO<sub>2</sub> in 1987. These measurements were taken from the Citrus Heights, Sunrise Boulevard Monitoring Station (approximately 25 miles south of Beale Air Force Base).

ppm = parts per million.

ug/m<sup>3</sup> = micrograms per cubic meters.

Source: CARB, 1988.

TABLE 3-2

Maximum Background Air Quality Concentrations  
Surrounding Beale Air Force Base  
1985-1987

<u>Pollutant</u>	<u>Averaging Period</u>	<u>Maximum Background Concentration (ug/m<sup>3</sup>)</u>	<u>CAAQS (ug/m<sup>3</sup>)</u>	<u>NAAQS (ug/m<sup>3</sup>)</u>
O <sub>3</sub>	1 hour	353	180	240
	Annual	80	-	-
NO <sub>2</sub>	1 hour	188	470	-
	Annual	41	-	100
CO	1 hour	11	23,000	40,000
	8 hour	8	10,000	10,000
SO <sub>2</sub>	1 hour	26	655	-
	3 hour	24	-	1,300
	24 hour	21	131	365
	Annual	0	-	80
PM <sub>10</sub>	24 hour	98	50	150
	Annual	36.2	30	50

Source: CARB, 1988.

ug/m<sup>3</sup> = micrograms per cubic meters

and Federal 1-hour  $O_3$  standards and State 24-hour  $PM_{10}$  standards were exceeded at least once within the 1985-87 data collection period.

The United States Environmental Protection Agency (EPA) has designated Yuba County an attainment area for all pollutants except  $O_3$ . An attainment area is a region or air basin in which monitored air quality levels are in compliance with the NAAQS. The background data listed in Tables 3-1 and 3-2 show that the 24-hour  $PM_{10}$  CAAQS standard of  $50 \text{ ug}/\text{m}^3$  was violated at the Yuba City station in Sutter County at least once during the 1985-87 sampling period.

CARB also reports the average daily air emissions for air basins and counties based on information provided to them by each Air Pollution Control District. This information for Yuba County for 1983 (the most current data available) is presented in Table 3-3. Sources of emissions are presented by category. In this inventory, aircraft operating from Beale AFB are categorized under Other Mobile Sources as Aircraft-Government. This category of sources contributed less than 6 percent of the total organic gases, 7 percent of the reactive organic gases, slightly more than 2 percent of the carbon monoxide, and less than 5 percent of the oxides of nitrogen emitted county-wide.

A complete air emissions inventory reflecting current base operations (both stationary sources and aircraft) is not available. However, the Yuba County Air Pollution Control District does permit some major stationary source emissions at Beale AFB. This does not, however, reflect the total composition of base operating emissions because permitted sources contribute only part of the total operating emissions.

### 3.3 WATER RESOURCES

#### 3.3.1 Regional Setting

Beale AFB is drained by three principal drainage systems. They flow in a general southwesterly direction and are identified from east to west as Dry Creek, Hutchinson Creek, and Reeds Creek. Hutchinson Creek and Reeds Creek are classified as intermittent, while Dry Creek is a perennial stream. In the spring, vernal pools (perched or standing water) can be observed on and around Beale AFB in low-

TABLE 3-3

**1983 Base Year Inventory  
Average Daily Air Emissions  
Yuba County**

Source Category	Emissions (tons/day)						
	Total Organic Gases	Reactive Organic Gases	Carbon Monoxide	Oxides of Nitrogen	Oxides of Sulfur	Particulate Matter	Particulate Matter < 10 microns
<b>STATIONARY SOURCES</b>							
Fuel Combustion	-	-	-	-	-	-	-
Agricultural	-	-	-	-	-	-	-
Petroleum Refining	1.2	0.9	1.3	0.5	-	0.1	0.1
Other Manufacturing/Industrial	-	-	-	0.1	-	-	-
Other Services and Commerce	0.2	0.1	1.1	0.2	-	0.2	0.1
Residential	-	-	-	-	0.1	-	-
Other	1.4	1.0	2.4	0.8	0.1	0.3	0.2
<b>TOTAL FUEL COMBUSTION</b>							
Waste Burning	1.1	0.4	8.9	-	-	1.0	1.0
Agricultural-Debris	-	-	0.1	-	-	-	-
Range Management	-	-	0.4	-	-	-	-
Forest Management	-	-	-	-	-	-	-
Incineration	-	-	-	-	-	-	-
Other	0.1	-	0.6	-	-	0.1	0.1
<b>TOTAL WASTE BURNING</b>	1.2	0.4	10	-	-	1.1	1.1
Solvent Use	0.1	0.1	-	-	-	-	-
Dry Cleaning	0.1	0.1	-	-	-	-	-
Degreasing	0.3	0.3	-	-	-	-	-
Architectural Coating	0.2	0.2	-	-	-	-	-
Other Surface Coating	0.3	0.3	-	-	-	-	-
Asphalt Paving	0.4	0.4	-	-	-	-	-
Consumer Products	0.1	0.1	-	-	-	-	-
Industrial Solvent Use	1.5	1.5	-	-	-	-	-
<b>TOTAL SOLVENT USE</b>							

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TABLE 3-3 (cont'd)

Source Category	Emissions (tons/day)					
	Total Organic Gases	Reactive Organic Gases	Carbon Monoxide	Oxides of Nitrogen	Oxides of Sulfur	Particulate Matter < 10 microns
Petroleum Process, Storage & Transfer						
Petroleum Refining	-	-	-	-	-	-
Petroleum Marketing	0.4	0.4	-	-	-	0.1
Other	0.1	0.1	-	-	-	-
TOTAL PETROLEUM PROCESS, STORAGE & TRANSFER	0.5	0.5	-	-	-	0.1
Industrial Processes						
Food and Agriculture	-	-	-	-	-	0.2
Mineral Processes	-	-	-	-	-	0.3
Wood and Paper	-	-	-	-	-	0.1
TOTAL INDUSTRIAL PROCESSES	-	-	-	-	-	0.6
Misc Processes						
Pesticide Application	1.1	1.1	-	-	-	-
Farming Operations	-	-	-	-	-	4.7
Construction and Demolition	-	-	-	-	-	1.3
Entrained Road Dust - Paved	-	-	-	-	-	8.2
Entrained Road Dust - Unpaved	-	-	-	-	-	3.1
Unplanned Fires	0.1	0.1	0.8	-	-	0.1
TOTAL MISC PROCESSES	1.2	1.2	0.8	-	-	17
TOTAL STATIONARY SOURCES	5.8	4.6	13	0.8	0.1	20
						9.8



TABLE 3-3 (cont'd)

Source Category	Emissions (tons/day)						Particulate Matter < 10 microns
	Total Organic Gases	Reactive Organic Gases	Carbon Monoxide	Oxides of Nitrogen	Oxides of Sulfur	Particulate Matter	
<b>MOBILE SOURCES</b>							
On Road Vehicles							
Light Duty Passenger	2.4	2.2	15	1.5	0.1	0.2	0.1
Light and Medium Duty Trucks	1.3	1.2	8.2	0.9	-	0.1	-
Heavy Duty Gas Trucks	0.3	0.3	3.8	0.3	-	-	-
Heavy Duty Diesel Trucks	0.1	0.1	0.4	1.0	0.1	0.1	0.1
Motorcycles	0.1	0.1	0.1	-	-	-	-
<b>TOTAL ON ROAD VEHICLES</b>	4.2	3.9	28	3.7	0.2	0.4	0.2
<b>Other Mobile</b>							
Off Road Vehicles	0.4	0.4	1.5	-	-	-	-
Trains	0.3	0.3	0.3	1.0	0.1	0.1	0.1
Aircraft - Government	0.7	0.7	1.1	0.3	-	-	-
Aircraft - Other	-	-	1.1	-	-	-	-
Mobile Equipment	0.3	0.3	3.2	0.9	0.1	0.1	0.1
Utility Equipment	0.2	0.2	0.9	-	-	-	-
<b>TOTAL OTHER MOBILE</b>	1.9	1.9	8.1	2.2	0.2	0.2	0.2
<b>TOTAL MOBILE SOURCES</b>	6.1	5.8	36	5.9	0.4	0.6	0.4
<b>TOTAL YUBA COUNTY</b>	12	10	49	6.7	0.5	20	10

NOTE: A "-" indicates that emission estimates rounded off to less than 0.1 ton per day.

SOURCE: CARB, 1986.

lying areas. This condition is caused by the presence of near-surface clays and hardpans that are relatively impervious to the vertical movement of water (Aerovironment, 1987).

Groundwater movement in the region has historically been in a direction from the Sierra Nevada foothills eastward to the Feather and Sacramento Rivers. Until the early part of this century, the river system served as a groundwater discharge system. However, extensive farming and irrigation in the Sacramento Valley area rapidly lowered the water table and altered the direction of flow, thus changing the river from a discharge to a recharge system (Aerovironment, 1987).

### **3.3.2 Groundwater Conditions**

Groundwater generally flows in a westerly/southwesterly direction across the base. The most obvious groundwater characteristic in the area is intense drawdown southwest of the base boundary caused by irrigation pumping. Between 1945 and 1974, the water table fell about 60 feet, then stabilized in the mid-1970s. However, between 1977 and 1980, the water table declined sharply once more, in response to drought and increased irrigation for rice production (Aerovironment, 1987). Since 1980, the water level has risen markedly as a result of increased precipitation and lower rice production. Nevertheless, the overall drawdown has been sufficient to alter the direction of local flow in the area of the base well-field from west to nearly south.

It is assumed that groundwater tapped for base use is basically unconfined except where local clay/silt lenses cap the aquifer to produce semiconfined conditions. Fresh water occurs at a depth of between 300 and 500 feet below the surface under most of the base. There are no known historical problems of human introduced contamination of local drinking water supplied from groundwater (Aerovironment 1987).

Current groundwater usage at Beale AFB varies from 2.5 million gallons per day (mgd) in the winter to 6.0 mgd in the summer; the large variation in usage due to high irrigation demand in the dry months. These usage figures are assuming an average daily base population of approximately 10,000 people, including military personnel, dependents, civilian workers, base contract personnel, retired personnel

taking advantage of base facilities, and other visitors. (Personal Communication, Mr. Tony Guerrero, Manager Waste Treatment and Water Supply, Beale AFB, 1989)

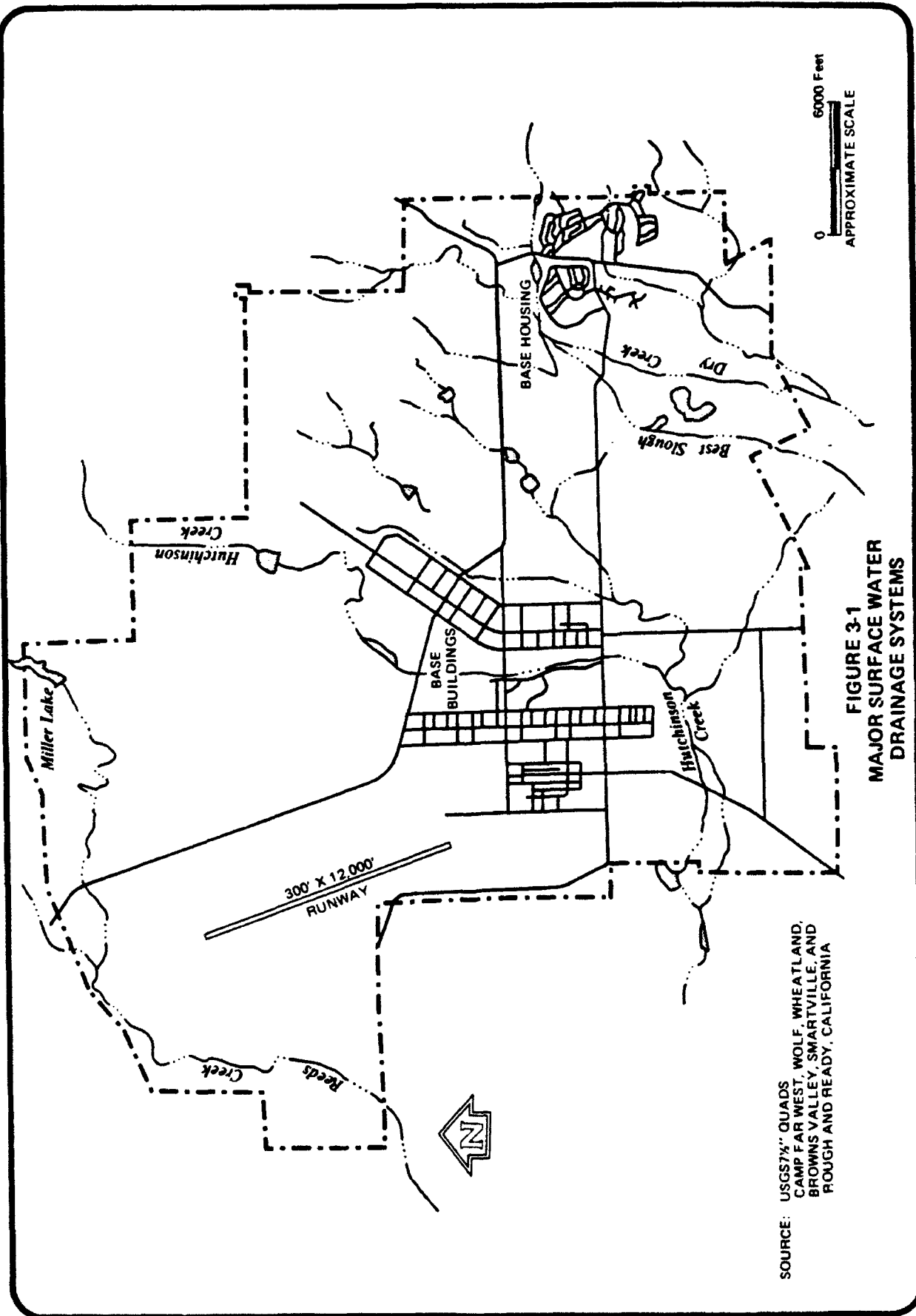
The SR-71 program contributes to photographic wastes that are created by the photographic laboratory. All wastewater from this lab is treated by a separate waste water treatment facility, adjacent to the sewage treatment plant. Until 1986, the treated wastewater was injected into three wells and the IRP investigation at Beale AFB found that deep soils and groundwater may be contaminated by phenolic compounds as a result of this photographic waste disposal activities. Photographic wastewater is no longer injected into disposal wells. (Aerovironment 1987).

Fire Protection Training Areas exist at Beale AFB where jet fuel, including fuel that is contaminated by dirt or oil and therefore unusable, hydraulic fluid, and waste solvents are used for live fire training. The SR-71 program may contribute combustible materials to this activity. The IRP investigation found no significant concentrations of contaminant in the water table aquifer at the Fire Protection Training Areas. (Aerovironment 1987).

### **3.3.3 Surface Water**

Runoff from the base is collected and converged offsite by three principal drainage systems. These drainage systems are Dry Creek, Hutchinson Creek, and Reeds Creek. With the exception of Dry Creek, these streams are primarily intermittent (Figure 3-1). Because of impervious soil conditions, lack of topographic relief and infrequent but sometimes heavy precipitation, the streams in the western portion of the base exhibit wide floodplain areas.

Dry Creek originates to the east of the base and flows to the southwest as Best Slough and Dry Creek, eventually discharging into the Bear River. Hutchinson Creek, which is the largest surface water system on the base, flows mainly south on base and eventually joins Reeds Creek. Reeds Creek flows mainly west through the base and generally parallels the northern base boundary. Reeds Creek and Hutchinson Creek join before they drain into Plumas Lake southwest of the base.



Both the Flightline and the Cantonment Areas drainage is collected by Hutchinson Creek and its tributaries. Surface runoff from the Family Housing Area is collected by unnamed tributaries to Dry Creek.

Surface water runoff from the Flightline Area has contaminated an unnamed stream and groundwater to the west of the runway. This site has been identified as a part of the base's ongoing Installation Restoration Program (IRP) and its restoration will be an ongoing part of that program.

The SR-71 is closely linked to problems identified by the IRP at this site, known as the West Drainage IRP Site No. 1. Surface runoff which enters the drainage inlet at the SR-71 apron exit the drainage system at the West Drainage. Other parts of the Flightline Area also drain into the West Drainage, but the SR-71 runoff is probably one of the major contributors of hydrocarbons into the West Drainage. (Aerovironment 1987). An oil/waste separator is used at the SR-71 apron, however, it is not able to handle all the flow of contaminated runoff. The bulk of the runoff flows directly to the West Drainage untreated. (Personal Communications, Mr. Kirk Schmalz, Beale AFB Engineering Group).

### **3.4 BIOLOGICAL RESOURCES**

The existing biota were evaluated by a combination of literature reviews, contacts with biological experts, and discussions with base personnel. Extensive interviews were conducted with agency personnel and peer professionals familiar with the area to identify sensitive species known to occur on the base. In addition, the National Wetlands Inventory maps of Beale AFB were also examined to determine if any wetlands had been previously identified.

#### **3.4.1 Sensitive Species and Habitats**

Beale AFB contains extensive open space and a variety of native habitats. The latter include various ponds, freshwater marshes, oak woodlands, riparian woodlands, streams, and vernal pools. Vernal pools are quite extensive west of the existing runway and contain plants included in the California Native Plant Society (CNPS) rare plant inventory. A base-wide wetland inventory was conducted in 1985 by U.S. Department of Agriculture, Soil Conservation Service (USDA SCS). During this

survey, all wetlands (including vernal pools) were classified and mapped. In addition, the potential occurrence of any CNPS-listed plants were evaluated. Although several CNPS-listed plants are present in vernal pools on the base, no plants listed as threatened or endangered by the State or Federal government are known or expected to occur in other wetland or upland habitats on Beale AFB.

Similarly, no wildlife species listed as threatened or endangered by the State or Federal government are known to occur on Beale AFB. However, the ponds on the base may provide a seasonal habitat for migrating waterfowl, and the open grasslands may provide a seasonal habitat for raptors.

Several federally listed bird species could occur at Beale AFB as vagrants on rare occasions for brief periods of time, including the Aleutian Canada goose, peregrine falcon, and bald eagle. The endangered valley elderberry longhorn beetle could occur on the base; however, there are few elderberry trees present to provide suitable habitat.

#### 3.4.2 Biological Characteristics

The western third of Beale AFB consists of gently rolling annual grasslands dominated by a variety of native and introduced grasses including wild oats (Avena sp.), barley (Hordeum sp.), and lolium (Lolium sp.). Several spring flowering herbs also occur, including brodiaea, wild hyacinth, and vetch.

Several vernal pools occur in the same area of the base. The pools are readily recognized due to the absence of grasses in the center and the predominance of coyote thistle (Eryngium yaseyi) in the pools.

Vernal pools may contain CNPS-listed species that could only be detected during a spring botanical survey. No listed or otherwise sensitive plant or wildlife species have been reported by experts, base personnel, or in literature reviewed to occur in this area. Several large dry ponds previously used for duck hunting are located west of the present runway area along the Reed's Creek drainage. These areas were drained and controlled to minimize the presence of transient birds and other water fowl. The purpose of this was to help reduce the potential for bird air strike hazards (BASH) to occur during flight operations.

Most of the central portion of the base has been previously graded or otherwise disturbed. Introduced grassland or turf vegetation is predominant. No vernal pools are present, nor have any sensitive plant or wildlife species been reported to occur in this area. One potentially sensitive habitat for transient wildlife is a small grove of cottonwoods within 200 feet of Hutchinson Creek adjacent to the containment area.

Portions of Hutchinson creek as it crosses the Southwestern area of the base has been designated as a vernal pool management area. This area has suitable topography and existing characteristics to help establish and protect this sensitive wetland habitat.

The western third of the base consists of rolling hills dominated by annual grassland. There are several drainages that traverse the site. No vernal pools are present. Literature, biological experts, and base personnel have not reported any sensitive wildlife species in this area. Riparian habitat exists along many of the drainages and Dry Creek has been used as a spawning area for salmon during the winter months when flow volumes have been substantial enough to sustain them.

### 3.5 NOISE

#### 3.5.1 Introduction

Noise is one of the byproducts of our society and is produced by a number of sources. The major characteristics of noise are: intensity measured in decibels (dB), frequency measured in cycles per second (Hz), and duration measured in time (hours, minutes, or seconds). Human reaction to noise is affected by all three of these factors. In the case of aircraft, engines generate vibrations in the air that are transmitted to the human ear and interpreted by the brain as noise. Generally, the most troublesome noise occurs at a high-pitched frequency, perceived as loud, and that occurs over long periods of time.

The USAF has developed the Air Installation Compatible Use Zone (AICUZ) concept, which is designed to promote land use development near its airfields in a manner which will not only protect adjacent communities from the noise and safety hazards associated with aircraft operations but also preserve the operational integrity of its airfields. The AICUZ concept specifies a wide variety of types and intensities

of land usage by a series of district, (Compatible Use District or CUD) which consider noise exposure and accident potential near airfields. Compatible development and control of off base land is accomplished through established planning, zoning, or other processes used by agencies having political jurisdiction over these areas. The AICUZ report, created from the AICUZ process, is intended to assist these agencies in the resolution of land use planning questions.

The AICUZ consist of three types of areas. The first areas are Accident Potential Zones (APZ) which are based on past USAF aircraft accidents and installation operational data. The second type, Noise Zones (NZ), are produced by a computer program (NOISE MAP) discussed below. Last are areas designated by the Federal Aviation Administration (FAA) and the USAF for height limitation in the approach and departure zones of the airfield. (USAF, 1984).

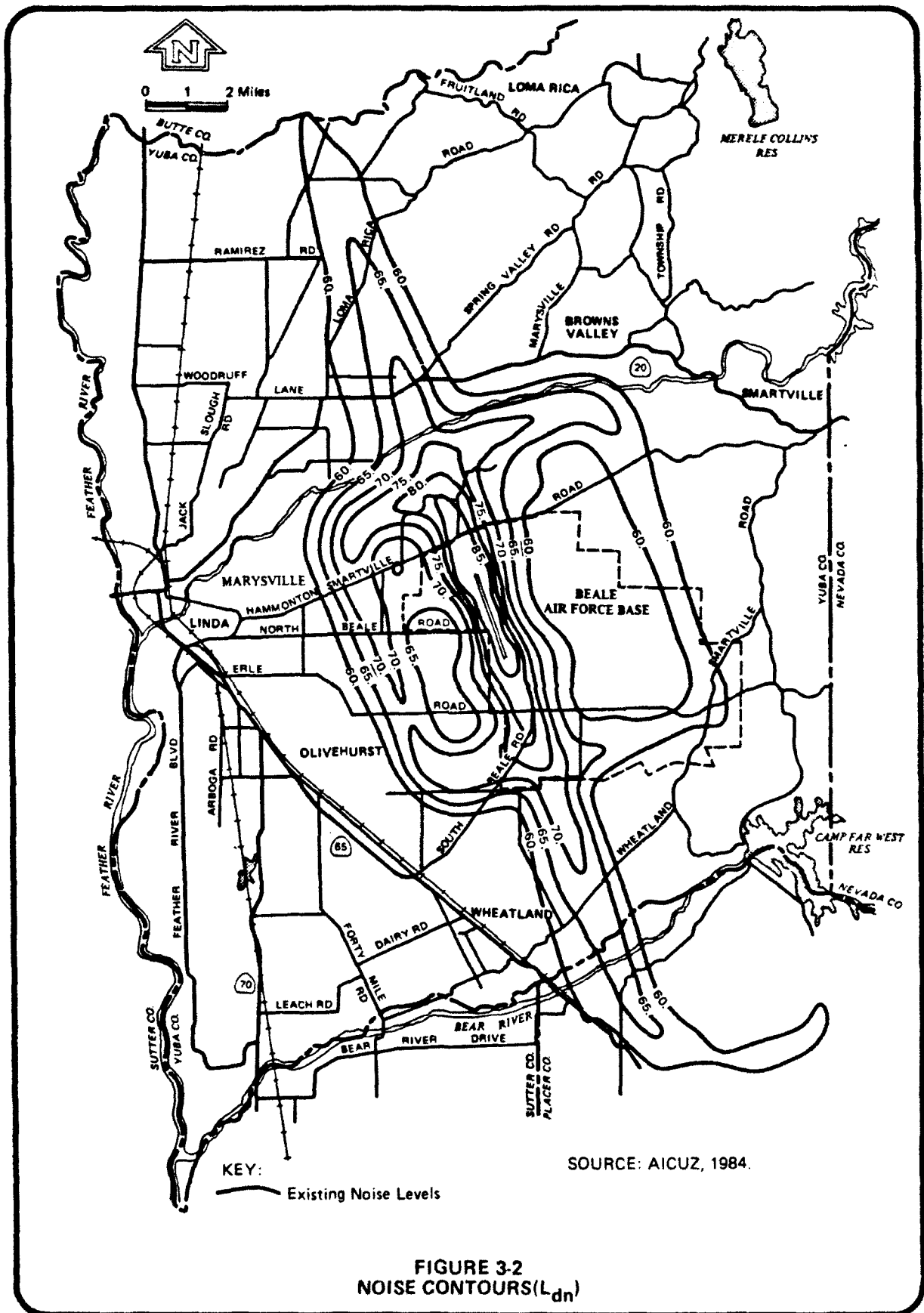
### 3.5.2 Existing Noise Conditions

A series of noise contours that represent current Beale AFB flight activity have been generated from the AICUZ data. These noise contours are expressed as Day-Night Average Sound Levels ( $L_{dn}$ ), a noise measurement representing average 24-hour levels (USAF, 1984). It is recognized that a given level of noise may be more or less tolerable depending on the intensity, duration, and time-of-day of the exposure experienced by an individual. The  $L_{dn}$  measure accounts for people's sensitivity by considering noise levels for night time hours (2200 to 0700 hours) and increasing the noise measured during this period by 10 dB. The day time noise levels are combined with these night time levels and are averaged to obtain  $L_{dn}$  values.

Noise contours are lines showing areas having equal average sound levels and can be used to assess the effects of aircraft noise around airfields. Figure 3-2 shows these contours overlaying a map of the Beale AFB vicinity. Contours are presented for noise levels beginning at 65  $L_{dn}$ . This level is generally regarded as a maximum acceptable exterior exposure for noise-sensitive land uses. The 65  $L_{dn}$  contour calculated for Beale AFB and its vicinity covers approximately 36,000 acres.

The noise contours were developed using the computer program NOISEMAP, developed by the U.S. Department of Defense (DoD). This program generally





requires as input a description of the runway system and numbers of aircraft operations by aircraft type for day and night and for each flight corridor/runway combination. NOISEMAP combines these inputs with a library of noise data for each aircraft type and flight profile to compute total noise from operation and produce  $L_{\text{eq}}$  noise contours.

### 3.6 SOCIOECONOMICS

The description of socioeconomic factors is couched in a geographical context comprising primarily Yuba County, but also taking account of the surrounding region, as appropriate. Many of the military and civilian personnel of Beale AFB reside off base in Yuba as well as the neighboring counties of Sutter, Butte, Nevada, and Placer. A few reside as far away as Sacramento and its suburbs.

#### 3.6.1 Demographics

Population estimates for Yuba and Sutter Counties are presented in Table 3-4. Yuba county experienced a modest growth trend of between 1.7 percent and 2 percent per year since 1950. The Yuba and Sutter County population is projected to grow less rapidly than the state as a whole over the next several years. The population is expected to experience an average increase of 1.4 percent per year.

#### 3.6.2 Economic Characteristics

Beale AFB lies in the Yuba City Metropolitan Statistical Area (MSA), which is composed of Yuba and Sutter Counties. The resident civilian labor force for Yuba City MSA was 44,700 in 1987, of which 39,450 were employed, while 5,250 (11.7 percent) were unemployed (Cal EDD, 1988). The average number of jobs provided by Yuba City MSA-based employers totaled 34,500 in 1987, indicating that several thousand working residents of the region were employed away from the MSA. The structure of employment in the Yuba City MSA reflects a diversified economy resting on a strong base of agriculture, manufacturing, commerce, and government. Table 3-5 provides the composition of wage and salary employment for the Yuba City MSA in 1987.

The California Employment Development Department (CalEDD) projects modest growth of employment in the Yuba City MSA. Between 1987 and 1989,

TABLE 3-4

## Estimated Population of Communities Surrounding Beale AFB

	<u>Population</u>
Yuba County	57,300
Marysville	11,850
Wheatland	1,890
Unincorporated Area	43,600
Sutter County	62,500
Yuba City	24,600
Live Oak	4,100
Unincorporated Areas	33,800
Total Yuba and Sutter Counties	120,000
Total Urban	42,500

---

Source = CalDOF 1989

Note = Details may not add to totals because they  
have been rounded.

TABLE 3-5

Annual Average Wage and Salary Employment  
Yuba City Metropolitan Statistical Area, 1987  
(Yuba and Sutter Counties)

<u>Economic Sector</u>	<u>Number of Jobs</u>
Total agriculture, forestry, and fishing	5,200
Agriculture production	4,725
Agricultural services, forestry and fishing	475
Total nonagricultural	29,300
Construction and mining	1,850
Manufacturing	3,200
Food & kindred products	1,100
Lumber & wood products	1,225
Other manufacturing	875
Transportation and public utilities	1,275
Wholesale trade	1,325
Retail trade	6,300
Finance, insurance, and real estate	1,425
Services	5,925
Government	8,025
Federal	1,475
State	850
Local & education	5,700
Total employment	34,500

Source: CalEDD, 1988.

Note: Employment is reported by place of work. Details may not add to totals because they have been rounded.

CalEDD estimated that the total number of jobs in the region would increase by about 850, or about 2.5 percent. The retail trade sector was expected to experience the largest increase of any sector during the period. Next strongest are services and government jobs (Cal EDD, 1988). These projections do not take into account possible USAF actions such as deactivation of the SR-71 program.

Yuba and Sutter Counties were projected to have relatively slow population growth rates compared to neighboring Placer and Nevada Counties. Besides these two latter counties, the other central foothill counties and those around Sacramento are all projected to grow more rapidly than Yuba and Sutter in the near future (CCSCE, 1988), implying greater employment opportunities. Similar projections hold for the growth of personal income in the area.

Personal income levels in the Yuba City MSA have been lower, on a per capita basis, than the statewide averages. In 1987, the per capita income for the MSA was \$12,158 compared to the statewide average of \$17,841. The statewide average breaks down into a metropolitan portion average of \$18,044 per capita, and a nonmetropolitan area average of \$13,299 per capita. On this latter basis, the Yuba City MSA's per capita income is close to the statewide nonmetropolitan area average (BEA, 1989).

The Beale AFB Annual Report FY 1988 Economic Resource Impact Statement (ERIS) indicates that the base had a total of 4,642 personnel directly connected with host and tenant activities in FY 1988, of whom 4,142 were military and 500 were civilians. An additional 748 civilian and contractor personnel were employed in the Base Exchange, private on-base business, and contractor assignments (Beale AFB 9th SRW/ACC, 1988).

The ERIS estimates for payroll and expenditures spent in a 50-mile radius "Economic Impact Region" (EIR) are presented in Table 3-6.

The Environmental and Contract Planning Office (9th CSG/DEEV) of Beale AFB prepared a "Civilian/Military Locator Report" during November/December 1988. The report counted 4,183 military personnel and dependents, of which 1,411 were living off base within the 50-mile EIR. An additional 494 civilian employees of

TABLE 3-6

Estimated Payroll & Expenditures Spent in EIR and  
Estimated Secondary Job Creation

	Millions of Dollars
Total Military & Civilian Payroll	104.62
Payroll Spent in EIR	58.6
Non-Payroll Expenditures	40.0
Construction Activities	25.1
Services & Supplies	15.4
Non-Payroll Expenditures Spent in EIR	258.7
Cumulative Impact of Spending in EIR (considering multiplier effects)	258.7
Secondary Job Creation Due to Expenditures	1,732 jobs

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Source: Beale AFB 9th SRW/ACC, 1988.

Note: Details may not add to totals because they have been rounded.

host and tenant operations were accounted for, living within a 50-mile radius (including 56 on base). The vast majority of the off-base military personnel live close to the base. Similarly, among the civilian employees residing off base most live in nearby Marysville, Yuba City, Penn Valley, and Wheatland.

From these data, it is evident that the bulk of economic stimulus from consumption spending by Beale AFB personnel and civilian employees accrues to Yuba and Sutter Counties. Secondary effects radiate to the larger central California region through operation of employment and income multiplier effects.

### **3.7 Air Safety**

#### **3.7.1 Base Facilities**

The base has one active concrete runway, which is 12,000 feet long and 300 feet wide. There are asphalt overruns of 1,000 feet on the south and 2,250 feet on the north. The runway is capable of handling any aircraft in the Air Force inventory.

The Air Force maintains 3,000 foot by 3,000 foot Clear Zones at each end of the runway because of the significantly high accident potential in these areas. Within the Clear Zones, accident potential is so high that the necessary land use restrictions prohibit economic use of the land. Accident Potential Zones are less critical than the Clear Zones but still possess significant potential for accidents. Accident Potential Zones I are 3000 feet by 5000 feet areas adjacent to the Clear Zones. Accident Potential Zones II are 3000 feet by 7000 feet areas adjacent to Accident Potential Zones I. These three zones (Clear Zones, Accident Potential Zone I, and Accident Potential Zones II), combine to form an area of restricted activity that extends to 15,000 feet from the runway threshold. (USAF, 1984). A 1,000-foot safety zone on each side of the runway center line, a 200-foot safety zone from the center of each taxiway, and a 125-foot minimum safety zone from outside the aprons are also maintained. Hazardous cargo pads are located at the base, with a 1,250-foot safety distance required between hazardous cargos and inhabited structures.

### **3.7.2 Flying Operations**

Flying operations at Beale include three types of reconnaissance aircraft, aerial refueling aircraft, and four types of training aircraft. Information on flying operations are summarized in Table 3-7. A portion of T-38 and KC-135 operations shown in this table are in direct support of the SR-71 program.

Traffic patterns for Beale AFB are established according to Air Force directives, with safety and noise abatement considerations foremost. Prevailing winds are from the south about 90 percent of the time; thus, the majority of takeoffs are toward the south. The majority of the flying activity takes place east of the airfield and is regulated to a southeasterly flow. This means that most takeoffs are toward sparsely populated rural areas in Yuba and Placer counties. The northern patterns also fly over sparsely populated areas.

Flying operations are coordinated with the FAA, and flight paths are integrated to minimize conflict with civilian aircraft operations at Sacramento Metropolitan Airport, Yuba County Airport, Sutter County Airport, Lincoln Airport, and with military operations at McClellan Air Force Base.

## **3.8 Waste Disposal**

### **3.8.1 Solid Waste Disposal**

Solid waste from base operations and households is disposed in a sanitary landfill located on the southern portion of the facility, between the Cantonment Area and the family Housing Area. Vehicles enter the landfill from Gavin Mandry Road.

This landfill, occupying about 40 acres, has been in use since 1981, and is permitted by the State as a Class III (nonhazardous) landfill. The landfill has an estimated total capacity of approximately 3,795,000 cubic yards (cy) of which approximately 845,000 cy are used. The current usage rate is approximately 5219 cy per month or 62,628 cy per year. At this current rate of use, the landfill has an estimated remaining lifetime of 35 to 40 years. (Personal communications, Mr. Greg Miller, Beale AFB Environmental Engineering Department, September, 1989).



TABLE 3-7  
Average Daily Flying Operations at Beale AFB

	<u>Number</u>	<u>Percent of Total Operations</u>
Total Operations Per Day	668	100
SR-71 Operations Per Day	3	5
T-38 Operations Per Day	232	35
KC-135 Operations Per Day	156	23

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Source: Personal Communications, Linda Merrit, USAF Engineering  
Service Center, Tyndall AFB, Florida

Waste deposited there is primarily general refuse. Landfill operations consist of trench method disposal and water run-on and run-off controls are present. Management practices include no chemical disposal and covering the waste daily. This landfill was investigated under the Installation Restoration Program in 1985 through 1987 and was found to cause no significant environmental contamination. (Aerovironment, 1987).

### **3.8.2 Wastewater and Sewage Disposal**

The entire base, except the Flightline Area, is served by a gravity flow sanitary sewer system. Lift Station No. 5/9 is the main lift station serving the Flightline Area. All sanitary sewer flow is delivered to the Beale AFB Sewage Treatment Plant (STP), where it receives primary and secondary treatment with aeration. The STP has a sustained capacity of 5 million gallons per day and presently peaks at an average flow of 1.45 million gallons per day. During periods of heavy rain, storm water infiltrates the sanitary sewer system and at times causes an overflow condition if operators do not meter flow into the plant by backfilling the sanitary lines (PAT, 1989). To date, this has not caused significant problems.

During summer months, the aerated secondary effluent is used to water the golf course; otherwise it is discharged to Hutchinson Creek. The California Regional Water Quality Control Board (CRWQCB) issued a National Pollution Discharge Elimination System (NPDES) permit to Beale AFB to discharge their treated wastewater. A cease-and-desist order has been issued by the CRWQCB requiring Beale AFB to bring its wastewater discharge into compliance with the requirement of their permit (O'Haire, 1989).

A separate wastewater treatment plant, adjacent to the STP treats wastewater from the reconnaissance photo lab. This area was investigated under IRP. The STP was not identified or investigated under IRP.

## 4.0 ENVIRONMENTAL CONSEQUENCES OF THE PROPOSED ACTION

### 4.1 INTRODUCTION

This section provides an evaluation of potential environmental consequences for each of the environmental disciplines discussed in Section 3.0 that would result from implementation of the proposed action. Cumulative impacts from this proposed action and an unrelated proposed action to relocate the SUNT at Beale AFB from nearby Mather AFB will be addressed in a separate EIS being prepared to assess potential impacts related to the SUNT move in accordance with information published in the Federal Register on 8 February 1989 in the NOI for the EIS.

### 4.2 CONSEQUENCES TO THE PHYSICAL AND HUMAN ENVIRONMENTS

#### 4.2.1 Air Resources

Emissions data for the SR-71 aircraft and flight operations information specific to the SR-71 program are unavailable. (Personal communication, Beale AFB Environmental Engineering Staff, September 8, 1989). Therefore the quantitative reduction of emissions resulting from the SR-71 withdrawal can not be determined. However due to the relatively small percentage of SR-71 and supporting aircraft flight activity as compared to total base flight activity the withdrawal will likely result in a small and insignificant reduction in total base air emissions. This will result in a small but beneficial impact to local and regional air quality.

#### 4.2.2 Water Resources

Based upon current base water usage of approximately 2.5 mgd in the winter months and 6.0 mgd in the summer month, the SR-71 withdrawal and subsequent reduction in base personnel will reduce this daily water usage to approximately 2.3 mgd in the winter and 5.3 mgd in the summer. This will result in a small but beneficial reduction in demand to local water supplies.

Deactivation of the SR-71 program at Beale AFB will not significantly impact groundwater or surface water resources at Beale AFB. Accidental fuel spillage and subsequent contamination of drainage west of the runway that has previously occurred

through normal SR-71 operations will no longer occur. This will be a small but beneficial impact.

#### **4.2.3 Biological Resources**

Terrestrial and aquatic resources at Beale AFB will not be impacted as a result of the proposed action. Existing grassland and riparian habitat along drainages southwest of the existing runway that have been previously affected by contaminated surface runoff from the runway area as a result of SR-71 operations will be exposed to smaller quantities of this type of runoff. This will result in an overall improvement to the quality of these habitats in this portion of the base.

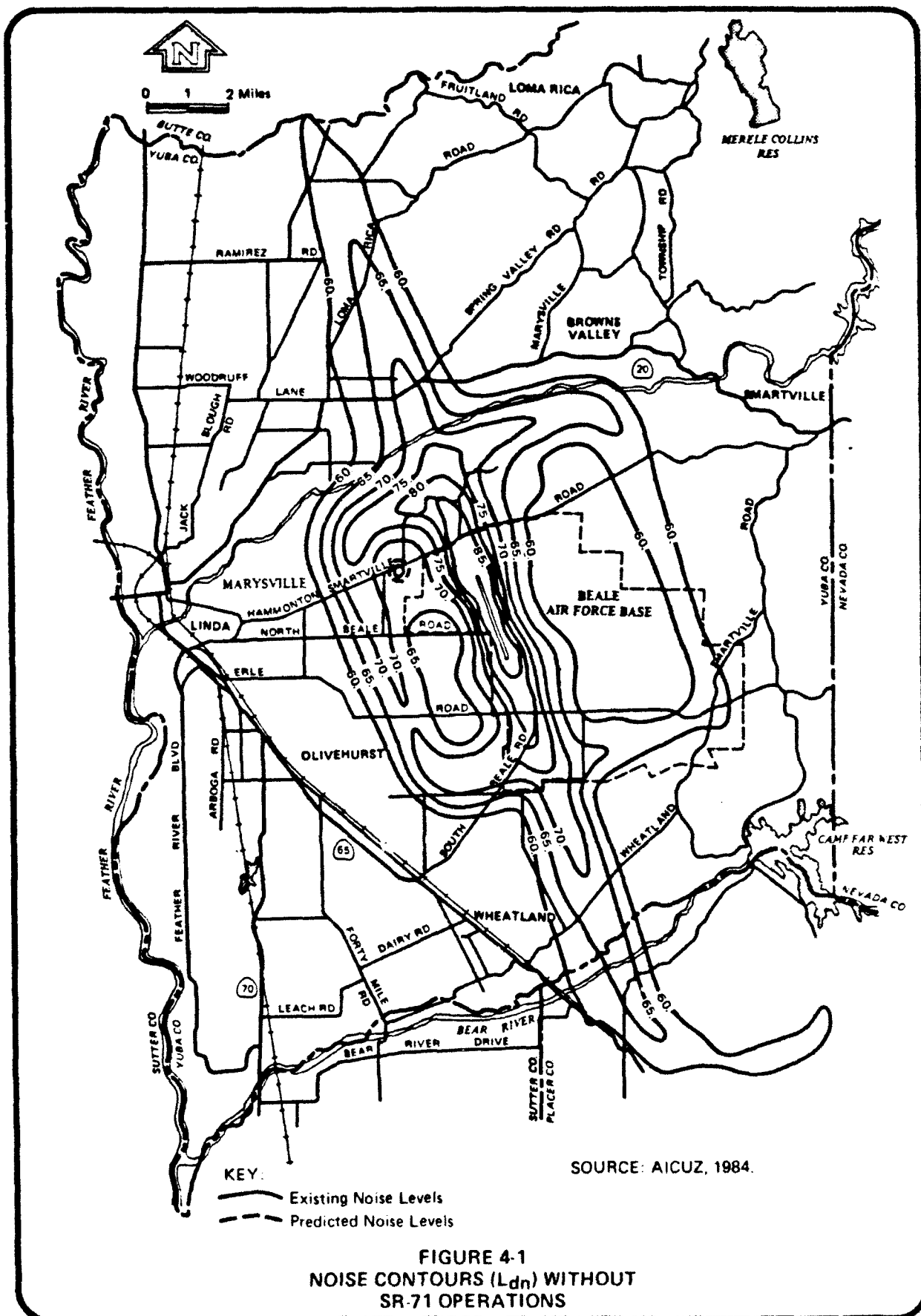
#### **4.2.4 Noise**

Noise contours calculated to represent base activities without the SR-71 program are present in Figure 4-1. These data found the 65  $L_{dn}$  contour to cover approximately 35,600 acres. This is approximately 400 fewer acres exposed to noise levels in excess of 65  $L_{dn}$ , or about one percent of the acres so exposed under current conditions (USAF, 1984). However, it is not anticipated that population centers or other sensitive receptors will experience significant change in noise exposure. This would have small but beneficial impact on the surrounding community.

Beale AFB received approximately 217 noise complaints during 1988; 95% of which were directly attributed to SR-71 operations (Captain Ronquillo, Personal Communications, 1989). These complaints originated from different areas across the western portion of the United States in the vicinity where SR-71 flight training patterns have been established. These complaints were usually the result of sonic booms generated by the SR-71 during flight training exercises. The deactivation of the SR-71 program would eliminate the major contributor of noise complaints received by Beale AFB and sonic booms over the western United States as a result of cessation of SR-71 flight training exercises.

#### **4.2.5 Socioeconomics**

Implementation of the proposed action will result in the elimination of approximately 67 officer, 519 enlisted and 38 civilian positions at Beale AFB. These numbers are indicated below:



<u>Category</u>	<u>Existing Personnel</u>	<u>SR-71 Personnel</u>	<u>SR-71 Personnel as Percent of total</u>
Officer	562	67	12
Enlisted	3,226	519	16
Civilian	<u>476</u>	<u>38</u>	<u>8</u>
Total	4,264	624	15

Officer and enlisted personnel will be transferred to other USAF installations or to other function currently operating out of Beale AFB. The loss of 38 civilian job opportunities represents an insignificant adverse impact to the local and regional economic base.

#### **4.2.6 Air Safety**

The deactivation of the SR-71 program at Beale AFB will reduce air traffic at and in the vicinity of the base by more than three percent. Reductions in air traffic will enhance overall air safety since opportunity for aircraft accidents will be reduced. Therefore, the deactivation of the SR-71 program will help to improve air safety in and around Beale AFB.

#### **4.2.7 Waste Disposal**

As stated in Section 3.8 the current landfill usage is about 5219 cy per month or 62,628 cy per year. The deactivation of the SR-71 and a loss of 624 military and civilian personnel will reduce this amount to 4893 cy per day or about 39,080 cy per year. This will extend the landfill's useful lifetime and result in a small but beneficial impact.

### **4.3 MITIGATION MEASURES**

No mitigation measures are required for the proposed action. All of the impacts identified are small but beneficial with the exception of the loss of jobs for approximately 38 civilian personnel. This adverse impact is deemed insignificant with respect to the local/regional economic base. Deactivation of the SR-71

project will not affect the investigations/remedial action that are ongoing with respect to Beale AFB's IRP program.

#### **4.4 ADVERSE EFFECTS THAT CANNOT BE AVOIDED IF THE PROPOSED ACTION IS IMPLEMENTED**

The only unavoidable adverse impact as a result of implementation of the proposed project would be the loss of approximately 38 civilian positions. Military personnel will be either transferred to other USAF installations or assigned to other functions at Beale AFB. The loss of about 38 civilian employment opportunities is expected to be insignificant with respect to the local and regional economic base.

#### **4.5 IRREVERSIBLE AND IRRETRIEVABLE COMMITMENT OF RESOURCES**

No irreversible and irretrievable commitment of resources is expected to occur as a result of the deactivation of the SR-71 program.

#### **4.6 RELATIONSHIP BETWEEN SHORT-TERM USES AND LONG-TERM PRODUCTIVITY**

Implementation of the proposed action is not expected to result in any long-term adverse impacts on the productivity of the environment. Existing SR-71 facilities that will no longer be needed under the current program (hangers, maintenance and operating facilities, pipelines, fuel tanks) will become available for other compatible uses. As facilities become available as a result of the SR-71 deactivation, other tenants and/or host activities will acquire/modify these facilities for their own uses.

Included in the recommendations of the Commission on Base Realignment and Closure, which were approved by the Secretary of Defense and the U.S. Congress, is a recommendation to relocate the 323rd Flying Training Wing--the Specialized Undergraduate Navigation Training (SUNT)--currently operating out of Mather AFB to Beale AFB. When implemented as required by Congress, the SUNT may become users of many facilities currently occupied by the SR-71 program.

## 5.0 REFERENCES

- Aerovironment, Inc., May 1987. Installation Restoration Program Phase II--Confirmation/Quantification Stage 1 Final Report for Beale Air Force Base, Marysville, California.
- Air Force Regulations 19-2.
- Beale Air Force Base, 9th SRW/ACC, 1988. Beale Annual Report FY 1988, Economic Resource Impact Statement.
- Beale Air Force Base, Housing Assistance Office, 9th CSG/DEEV, November/December 1988. Civilian/Military Locator Report.
- Bureau of Economic Analysis (BEA), U.S. Department of Commerce, April 1989. Survey of Current Business, Vol.69, No.4.
- California Air Resources Board (CARB), Technical Support Division, 1988, Air Quality Data Summaries 1985-1987.
- California Air Resources Board (CARB), Technical Support Division, Emission Inventory Branch, December 1986. Emission Inventory 1983.
- California Department of Finance, Demographic Research Unit, (Cal DOF), May 1989. Population Estimate of California Cities and Counties, January 1, 1988 to January 1, 1989. Report 89 E-1.
- California Employment Development Department (Cal EDD), May 1988. Annual Planning Information: Yuba City Metropolitan Statistical Area (Sutter-Yuba County), 1988-1989.
- Center for Continuing Study of the California Economy (CCSCE), 1988. California County Projections, 1988 Edition.
- EDAW, Inc., 1988. Draft Base Comprehensive Plan for Beale Air Force Base, California.
- O'Haire, Karen, California Regional Water Quality Control Board, letter to Hugh Stirts, U.S. Department of the Air Force of March 21, 1989.



- Planning Assistance Team (PAT), March 1989. Base Realignment Siting Analysis for Beale Air Force Base, California. Air Force Regional Civil Engineer, Western Region, San Francisco, CA.
- U.S. Air Force (USAF), August 1984. Air Installation Compatible Use Zone (AICUZ). A report to the governments and citizens of the Beale AFB Environs.
- U.S. Department of Agriculture (USDA) Soil Conservation Service, 1985. Beale Air Force Base, Interim Soil Survey.
- U.S. Geological Survey, 1973. Camp Far West, California 1:24,000 topographic quadrangle.
- U.S. Geological Survey, 1973. Wolf, California 1:24,000 topographic quadrangle.
- U.S. Geological Survey, 1973. Wheatland, California 1:24,000 topographic quadrangle.
- U.S. Geological Survey, 1973. Browns Valley, California 1:24,000 topographic quadrangle.
- U.S. Geological Survey, 1973. Smartville, California 1:24,000 topographic quadrangle.
- U.S. Geological Survey, 1973. Rough and Ready, California 1:24,000 topographic quadrangle.

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**APPENDIX A**  
**List of Abbreviations and Acronyms**

AFB	Air Force Base
AFR	Air Force Regulation
AICUZ	Air Installation Compatible Use Zone
APZ	Accident Potential Zone
BASH	Bird Air Strike Hazard
BEA	Bureau of Economic Analysis
CAAQS	California Ambient Air Quality Standards
CalDOF	California Department of Finance
CalEDD	California Employment Development Department
CARB	California Air Resources Board
CCSCE	Center for Continuing Study of the California Economy
CEQ	Council of Environmental Quality
CFR	Code of Federal Regulations
CNPS	California Native Plant Society
CO	carbon monoxide
CRWQCB	California Regional Water Quality Control Board
CUD	Compatible Use District
cy	cubic yard
dB	decibels
DEA	Draft Environmental Assessment
DoD	Department of Defense
EA	Environmental Assessment
EIR	Economic Impact Region
EIS	Environmental Impact Statement
EOD	Explosive Ordnance Demolition
EPA	Environmental Protection Agency
ERIS	Economic Resource Impact Statement
FAA	Federal Aviation Administration
FY	fiscal year

10/1/90

Appendix A-1

HQ/SAC	Headquarters/Strategic Air Command
Hz	Hertz or cycle per second
IRP	Installation Restoration Program
$L_{dn}$	Day-Night Average Sound Level
MSA	Metropolitan Statistical Area
mgd	million gallons per day
NAAQS	National Ambient Air Quality Standards
NEPA	National Environmental Policy Act of 1969
$NO_2$	Nitrogen dioxide
NOI	Notice of Intent
NPDES	National Pollution Discharge Elimination System
NZ	Noise Zones
$O_3$	Ozone
PAT	Planning Assistance Team
PDEA	Preliminary Draft Environmental Assessment
$PM_{10}$	10-micron particulate matter
ppm	parts per million
SCS	Soil Conservation Service
SRW	Strategic Reconnaissance Wing
$SO_2$	Sulfur dioxide
STP	sewage treatment plant
SUNT	Specialized Undergraduate Navigation Training
$ug/m^3$	micrograms per cubic meters
USDA	United States Department of Agriculture
USAF	United States Air Force